

B O N N E V I L L E
P O W E R A D M I N I S T R A T I O N



**Available Transfer Capability
Implementation Document
(MOD-001-1a)**

**Bonneville Power Administration
Transmission Services**

Effective Date: February 16, 2022

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I. Purpose

This Available Transfer Capability Implementation Document (ATCID) addresses all of the requirements of North American Electric Reliability Corporation (NERC) Reliability Standard MOD-001-1a (Available Transmission System Capability). This ATCID is specifically required by MOD-001-1a, R3 and its sub-requirements. This ATCID also outlines BPA's Postback Methodology as required by North American Energy Standards Board (NAESB) Wholesale Electric Quadrant business practice standards.

This ATCID only applies to ATC calculations through month 13.

II. Definitions

All capitalized terms used in this ATCID are either contained in NERC's Glossary of Terms, NAESB WEQ-000, or are defined in this ATCID.

Defined terms specific to BPA include:

- **Federal Columbia River Power System (FCRPS):** The Transmission System constructed and operated by BPA and the 31 federally-constructed hydroelectric dams¹ on the Columbia and Snake Rivers, and the Columbia Generating Station nuclear plant. Each entity is separately managed and financed, but the facilities are operated as an integrated power System.
- **Federal Columbia River Transmission System (FCRTS):** The FCRTS is comprised of BPA's main grid network Facilities (Network), Interconnections with other Transmission Systems (External Interconnections²), Interties,³ delivery Facilities, subgrid Facilities, and generation Interconnection Facilities within the Pacific Northwest region and with western Canada and California.
- **Long-Term Reservation:** a confirmed reservation that has duration greater than or equal to 365 days
- **Short-Term Reservation:** a confirmed reservation that has duration less than 365 days

¹ Albeni Falls, Anderson Ranch, Big Cliff, Black Canyon, Boise River Diversion, Bonneville, Chandler, Chief Joseph, Cougar, Detroit, Dexter, Dworshak, Foster, Grand Coulee, Green Peter, Green Springs, Hills Creek, Hungry Horse, Ice Harbor, John Day, Libby, Little Goose, Lookout Point, Lost Creek, Lower Granite, Lower Monumental, McNary, Minidoka, Palisades, Roza and The Dalles

² Northern Intertie, Reno-Alturas Transmission System, West of Hatwai, West of Garrison and LaGrande paths.

³ California-Oregon AC Intertie, Pacific DC Intertie, and Montana Intertie.

III. Overview

BPA owns and provides Transmission Service over the FCRTS. BPA is registered with NERC as a Transmission Operator (TOP) and Transmission Service Provider (TSP), among other registrations.

Methodologies Selected

MOD-029-2a

BPA has elected to use the Rated System Path Methodology (MOD-029-2a) to calculate Available Transfer Capability (ATC) for its paths. The description of how BPA implements this methodology for these paths is included in this ATCID. (MOD-001 R1)

MOD-008-1

BPA maintains Transmission Reliability Margin (TRM) as described in NERC Standard MOD-008-1 for its Northern Intertie, West of Garrison E>W and Satsop Injection paths. The description of how BPA implements TRM can be found in BPA's TRM Implementation Document (TRMID), found on BPA's website. BPA does not maintain TRM for any other paths.

Methodologies Not Applicable to BPA

BPA does not use the Area Interchange Methodology (MOD-028-2), the Flowgate Methodology (MOD-030-2), or a Capacity Benefit Margin (MOD-004-1). Therefore, these standards are not applicable to BPA.

ATC Calculations

ATC Calculation Periods

BPA calculates ATC values using the Rated System Path Methodology for the following time periods: (MOD-001 R2)

- Hourly values for up to 168 hours. The next hour may be calculated in subhourly intervals, with the most limiting subhourly ATC value being the hourly value. (MOD-001 R2.1)
- Daily values for day 3 through day 90. For days 3 to 7 (up to hour 168), the daily ATC value is the most limiting hourly ATC value for that day. (MOD-001 R2.2)
- Monthly values for month 2 through month 13. For months 2 and 3 (up to day 90), the monthly ATC value is the most limiting daily ATC value for that month. (MOD-001 R2.3)

Frequency of ATC Recalculation

BPA recalculates ATC on the following frequency, even if the calculated values identified in the ATC equation are unchanged: (MOD-001 R8)

- Hourly, at least once per hour. (MOD-001 R8.1)
- Daily, at least once per day. (MOD-001 R8.2)

- Monthly, at least once per day. (MOD-001 R8.3)

BPA may recalculate ATC values more frequently due to changes in Total Transfer Capability (TTC), Power Transfer Distribution Factors (PTDFs), system issues or as deemed necessary.

Limiting Assumptions

BPA studies assumptions of various System conditions to develop TTCs for its paths for the planning of operations time frame. The governing TTCs for each time frame are established from these planning of operations studies, based on the time period being calculated and the reason for the change in TTC. BPA uses these TTCs in its ATC calculations. There are no additional TTC studies conducted to establish the path TTCs used BPA's ATC calculations. Therefore when determining the TTC, BPA studies assumptions that are no more limiting than those used in its planning of operations for the corresponding time period, when such planning of operations has been performed for that time period. (MOD-001 R6)

When calculating ATC, BPA uses the TTCs determined in its planning of operations TTC studies. There are no additional TTC studies conducted to establish the path TTCs used in BPA's ATC calculations. For flow-based paths, BPA calculates Existing Transmission Commitments (ETC) by summing base ETC from power flow studies with interim ETC from PTDFs. BPA uses the most recent System condition information to re-calculate its hourly, daily and monthly PTDFs in the planning of operations time frame. The ETCs used in BPA's ATC calculations are re-calculated with these updated PTDFs in each time frame. There are no additional ETC studies, beyond the base ETC studies and the PTDF calculations, performed during the planning of operations time frame. Therefore, BPA does not use more limiting assumptions when calculating ATC in its planning of operations time frame. (MOD-001 R7)

IV. Allocation Processes

BPA uses the same methodology to allocate transfer capability among multiple lines or sub-paths within a larger path as it uses to allocate transfer capability among multiple owners or users of a path. For paths where ownership Agreements exist, the methodology is to allocate transfer capabilities according to contractual rights defined in individual Agreements among the various owners. These Agreements define the specific percentages of capacity or MW amounts of rights assigned to each owner for specific time periods. Agreements do not exist for three of BPA's flow-based paths: South of Allston S>N, Columbia Injection N>S and Wanapum Injection N>S. For South of Allston S>N, the same allocation methodology described in the South of Allston N>S Contract is used. For Columbia Injection N>S and Wanapum Injection N>S, BPA determines its share of TTC based on BPA's owned transmission lines that make up the flow-based path when all lines are in service. During outage conditions, individual allocations exist for the loss of each transmission line in the flow-based path. BPA determines its share of ETC for Columbia Injection N>S and Wanapum Injection N>S by modeling the full path of BPA's lines only.

At this time BPA does not allocate transfer capabilities between TSPs to address forward-looking congestion management and seams coordination. (MOD-001 R3.5)

V. Outages

Outages from all TSPs that are internal or adjacent to BPA's Balancing Authority Area (BAA) can be mapped to the WECC base cases. (MOD-001 R3.6.3)

Outage Planning

Outage plans and the policy are posted to the Outage Plans website at:
<http://www.bpa.gov/transmission/Reports/Pages/Proposed-Outages.aspx>.

Outage Criteria for TTC Calculations

BPA incorporates outages into the TTC calculations after they have been studied by BPA or provided to BPA by another TOP. Generally, BPA studies outages 10 to 16 days prior to the outage start date.

The duration of an outage is not a criteria by which BPA determines which outages to incorporate in its daily and monthly TTC calculations. The most conservative hourly TTC calculated for a given outage or combination of outages becomes the governing TTC for the daily calculation period. Likewise, the most conservative daily TTC for a given outage or combination of outages becomes the governing TTC for the monthly calculation period. (MOD-001 R3.6.1) (MOD-001 R.3.6.2)

VI. Priorities Used to Set TTC

BPA may update assumptions and calculate new TTCs when changes to System conditions will significantly impact those limits and may use those updated assumptions to determine new TTC values. The following hierarchy of priorities categorizes the TTC values based on the time period being calculated and the reason for the change. This prioritization may then be used to revise the path TTC for a given time period if BPA determines that more recent assumptions to calculate TTC values better reflect updated System information:

- **Real-time limit (highest priority):** The "Real-time limit" priority governs when BPA updates the assumptions of System conditions to calculate TTCs during the Real-time horizon. A change to the TTC calculation with the Real-time priority governs all other priorities. For example, if BPA receives an update that a scheduled outage will be extended by two hours early in the Real-time day, BPA may update the assumptions for the TTC calculation accordingly for the additional two hours and may use those same updated assumptions to update the TTC. If there are multiple real-time updates to assumptions for TTC calculations, the most recent TTC calculated governs.
- **Scheduling limit:** The "scheduling limit" priority may be used occasionally when the assumptions for the TTC are not governing or an actual scheduling limit has been imposed. If there is more than one scheduling limit, the lowest scheduling limit governs until a Real-time limit TTC is submitted.

- **Pre-schedule forecast:** The “pre-schedule forecast” TTC priority may be used for a path if the assumptions for the TTC calculations are updated for the pre-schedule period. For example, for TTCs calculated for flow-based paths that are derived using nomograms, if the assumptions are re-evaluated just prior to the pre-schedule day to incorporate updated data inputs, the TTC may be updated. The pre-schedule forecast TTC governs over the ‘studied’ priority.
- **Studied:** The “studied” priority is used when there are outages where a study report has been issued, including those provided by other TOPs. For example, if a study report is issued evaluating assumptions for line outage system conditions, the TTCs in that report govern over any lower-priority TTCs for the duration of the line outage conditions.
- **Estimated known limit:** The “estimated known limit” priority is used to establish unstudied TTCs or to define seasonal path TTCs that govern over “short-term seasonal” or “Path Rating” priorities.
- **Short-term seasonal:** The “short-term seasonal” priority is used for TTCs issued for seasonal Path Ratings. As these Ratings may be higher at certain times during the year, the short-term seasonal priority governs over the Path Rating priority. For example, if the longer-term Path Rating for a path is 7800 MW, but seasonally this Rating increases to 8000 MW, the short-term seasonal Rating of 8000 MW governs and is used to set the TTC during the season to which it applies.
- **Path Rating:** The “Path Rating” priority is used to set base TTCs using either the Rating of the paths, TTCs studied using normal conditions, TTCs calculated for the planning horizon, or all of the above. The lowest value resulting from the above calculations governs for the given time period and is used to set the TTC. For example, if under normal conditions the TTC for a path is 4410 MW, but the TTC calculated for the planning horizon is 4100 MW, the lower TTC of 4100 MW governs and is used to set the TTC for the path.
- **Informational limit (lowest priority):** The “informational limit” is used while establishing the initial setup of paths within the scheduling and reservation system. The informational limit is equal to the initial Path Rating of the path.

VII. Rated System Path Methodology for BPA’s Paths

This section describes how BPA implements the Rated System Path methodology for its paths. It addresses all of the requirements in MOD-029-2a.

BPA’s Paths

The following tables list BPA’s paths. BPA has a combination of 1:1 and flow-based paths, and uses MOD-029-2a to calculate ATC for both.

Table 1, BPA’s 1:1 Paths

1:1 Path Name	Direction
Northern Intertie Total On Oasis: NI_TOTL_N>S	(N>S)

1:1 Path Name	Direction
Northern Intertie Total On OASIS: NI_TOTL_S>N	(S>N)
Montana-Northwest West of Garrison On OASIS: WOGARR_E>W	(E>W)
Montana-Northwest West of Garrison On OASIS: WOGARR_W>E	(W>E)
La Grande On OASIS: LAGR_W>E	(W>E)
La Grande On OASIS: LAGR_E>W	(E>W)
Montana Intertie On OASIS: MI_E>W	(E>W)
Reno-Alturas NW Sierra On OASIS: RATS_N>S	(N>S)
Reno-Alturas NW Sierra On OASIS: RATS_S>N	(S>N)
California-Oregon AC Intertie (COI) On OASIS: AC_N>S	(N>S)
California-Oregon AC Intertie (COI) On OASIS: AC_S>N	(S>N)
Pacific DC Intertie On OASIS: DC_S>N	(S>N)
Pacific DC Intertie On OASIS: DC_N>S	(N>S)
Rock Creek On OASIS: ROCKCK_GEN	Gen
John Day Wind On OASIS: JDWIND_GEN	Gen
Satsop Injection On OASIS: SATSOP_GEN	Gen

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Table 2, BPA's Flow-Based Paths

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
North of Hanford On OASIS: NOHANF	(N>S)	Vantage-Hanford 500kV; Grand Coulee-Hanford 500kV; and Shultz-Wautoma 500kV	Heavy load case
North of Hanford On OASIS: NOHANF	(S>N)	Vantage-Hanford 500kV; Grand Coulee-Hanford 500kV; and Shultz-Wautoma 500kV	Heavy load case
South of Allston On OASIS: SOALSN	(N>S)	BPA -Owned Transmission Lines: Keeler-Allston 500kV; Lexington-Ross 230kV; and and St. Helens-Allston 115kV; Portland General Electric -Owned Transmission Lines: Trojan-St. Marys 230kV; and Trojan-River Gate 230kV; PacifiCorp-Owned Transmission Lines: Merwin-St. Johns 115kV; Astoria-Seaside 115kV; and and Clatsop 230/115kV	Heavy load case
South of Allston On OASIS: SOALSN	(S>N)	BPA -Owned Transmission Lines: Keeler-Allston 500kV; Lexington-Ross 230kV; and St. Helens-Allston 115kV; Portland General Electric -Owned Transmission Lines: Trojan-St. Marys 230kV; and Trojan-River Gate 230kV; PacifiCorp-Owned Transmission Lines: Merwin-St. Johns 115kV; Astoria-Seaside 115kV; and Clatsop 230/115kV	Heavy load case

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
Raver-Paul On OASIS: RAVR_PAUL	(N>S)	Raver-Paul 500 kV Line When the Raver-Paul 500 kV line is out of service, the following lines are monitored: Raver – Paul #1 500-kV; St. Clair – South Tacoma #1 230kV; Chehalis – Covington #1 230kV; Puget Sound Energy-Owned Transmission Lines: Frederickson– St. Clair 115kV; Electron Heights – Blumaer 115kV	Heavy load case
Cross Cascades North On OASIS: C-CASC_N	(E>W)	BPA-Owned Transmission Lines Schultz-Raver #1, 3, & 4 500kV; Schultz-Echo Lake #1 500kV; Chief Joseph-Monroe 500kV; Chief Joseph-Snohomish #3 & 4 345kV; Rocky Reach-Maple Valley 345kV; Grand Coulee-Olympia 287kV; Bettas Road - Covington #1 230kV. Puget Sound Energy-Owned Transmission Line Rocky Reach – Cascade 230 kV	Heavy load case
Cross Cascades South On OASIS: C-CACS_S	(E>W)	Big-Eddy-Ostrander 500kV; Ashe-Marion 500kV; Buckley-Marion 500kV; Knight-Ostrander 500kV; John Day-Marion 500kV; McNary-Ross 345kV; Big Eddy-Chemawa 230kV; Big Eddy-McLoughlin 230kV; Midway-North Bonneville 230kV; Jones Canyon-Santiam 230kV; and Big Eddy-Troutdale 230kV PGE-Owned Transmission Line Bethel – Round Butte 230 kV	Heavy load case
West of McNary On OASIS: WOMCNY	(E>W)	Coyote Springs-Slatt #1 500kV; McNary-Ross #1 345kV; Haralum – Big Eddy #1 230 kV; Jones Canyon-Santiam #1 230kV; McNary-John Day #2 500kV	Heavy load case

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
West of Slatt On OASIS: WOSLATT	(E>W)	Slatt-Buckley 500kV; and Slatt-John Day 500kV	Heavy load case
West of John Day On OASIS: WOJD	(E>W)	John Day – Big Eddy No. 1 500-kV line (metered at John Day); John Day – Big Eddy No. 2 500-kV line (metered at John Day); and John Day – Marion No. 1 500kV	Heavy load case
South of Boundary On OASIS: SBNDRY	(N>S)	Bell – Boundary #1 230kV; Bell – Boundary #3 230kV; Usk – Boundary #1 230kV; and Boundary 230/115kV Transformer #1	Heavy load case
Columbia Injection On OASIS: CLMBIA	(N>S)	Columbia-Grand Coulee #1 230-kV (metered at Columbia); Columbia-Grand Coulee #3 230-kV (metered at Columbia); Rocky Reach-Columbia #1 230-kV (metered at Columbia); Rocky Reach-Columbia #2 230-kV (metered at Columbia); Columbia-Valhalla #1 115-kV (metered at Columbia); and Columbia-Valhalla #2 115-kV (metered at Columbia)	Heavy load case
Wanapum Injection On OASIS: WANAPM	(N>S)	Midway-Vantage #1 230-kV; and Midway-Priest Rapids #3 230-kV	Heavy load case
West of Lower Monumental On OASIS: W_LOMO	(E>W)	Ashe – Lower Monumental 500kV; Hanford – Lower Monumental 500kV; and McNary – Lower Monumental 500kV	Heavy load case
North of Echo Lake On OASIS: N_ECOL	(S>N)	Echo Lake – Monroe - SnoKing Tap #1 500kV; Echo Lake – Maple Valley #1 500 kV; Echo Lake – Maple Valley #2 500kV; and Covington – Maple Valley #2 230kV	Heavy load case

Flow-based Path Name	Direction	Transmission Line Components	Case used for base ETC calculation
South of Custer On OASIS: SCSTER	(N>S)	Monroe - Custer #1 500kV; Monroe - Custer #2 500kV; Bellingham - Custer #1 230kV; and Murray - Custer #1 230kV Line	Heavy load case
West of Hatwai On OASIS: WOH_E>W	(E>W)	Lower Granite-Hatwai 500-kV line Grand Coulee-Bell 6 500-kV line Grand Coulee-Bell 3 230-kV line Grand Coulee-Bell 5 230-kV line Grand Coulee-Westside 230-kV line Talbot-Dry Creek 230-kV line Tucannon River-North Lewiston 115-kV line Devils Gap-Stratford 115-kV line Lind-Warden 115-kV line Creston-Bell 1 115kV line Dry Gulch-Pomeroy 69-kV line	Light load case

BPA will select the Rated System Path Methodology if new paths are implemented, and update the appropriate table above. (MOD-001 R1)

Calculating TTC

Data and Assumptions

When calculating TTC for its paths, BPA uses WECC base cases that utilize data and assumptions consistent with the time period being studied. (MOD-029, R1.1) In addition to BPA's TOP area, these WECC base cases model the entire Western Interconnection. Hence, the WECC base cases include all TOP areas regardless if they are either contiguous to BPA's TOP area or are linked to BPA's TOP area by a joint operating Agreement. (MOD-029 R1.1.1.2, R1.1.1.3)

TOP areas contiguous with BPA's TOP area include (MOD-029 R1.1.1.2):

- Avista Corporation (AVA)
- BC Hydro (BCH)
- California Independent System Operator (CAISO)
- City of Tacoma, Department of Public Utilities, Light Division
- Eugene Water and Electric Board (EWEB)
- Idaho Power Company (IPCO)
- Los Angeles Department of Water and Power (LADWP)
- NorthWestern Energy (NWMT)
- NV Energy

201 • PacifiCorp (PAC)
 202 • Pend Oreille County Public Utility District No. 1
 203 • Portland General Electric (PGE)
 204 • Public Utility District No. 1 of Chelan County
 205 • Public Utility District No. 1 of Clark County
 206 • Public Utility District No. 1 of Snohomish County
 207 • Public Utility District No. 2 of Grant County, Washington
 208 • PUD No. 1 of Douglas County
 209 • Puget Sound Energy, Inc. (PSEI)
 210 • Seattle City Light (SCL)

211 BPA uses the following data and assumptions in the WECC base cases when calculating
 212 TTCs for its paths:

213 BPA models all existing System Elements in their normal operating condition for the
 214 assumed initial conditions, up to the time horizon in which BPA begins modeling
 215 outages. (MOD-029 R1.1.2)

216 The WECC base cases include generators and phase shifters that meet the guidelines
 217 set out in the WECC Data Preparation Manual. (MOD-029 R1.1.3) (MOD-029 R1.1.4)

218 BPA uses the seasonal Load forecasts contained in the WECC base cases for each BA.
 219 (MOD-029 R1.1.5)

220 Generation and Transmission Facility additions and retirements within the WECC
 221 footprint are included in the WECC seasonal operating base cases for the season in
 222 which they are energized/de-energized, respectively. BPA engineers modify the WECC
 223 base cases to reflect the actual dates of energization/de-energization. (MOD-029
 224 R1.1.6, R1.1.7)

225 The WECC base cases include Facility Ratings as provided to WECC by the Transmission
 226 Owners and Generator Owners. (MOD-029 R1.2)

227 If Facility changes are made by BPA or another entity, then the base cases will be
 228 updated to reflect these changes with a Mid-Season update. (MOD-029 R1.1, R1.2)

229 The approved seasonal operating base cases that include the Facility changes will not
 230 be used until 0 to 16 days prior to the energization or implementation of the Facility
 231 change. (MOD-029 R1.1, R1.2)

232 For periods beyond two weeks, the WECC base cases will be updated as necessary to
 233 perform seasonal studies for the current or upcoming season in accordance with the
 234 current BPA study processes. (MOD-029 R1.1, R1.2, R2.1)

235 For all paths, except West of Garrison and Northern Intertie South to North, BPA uses
 236 the all lines in service TTC from the relevant seasonal studies when there are no
 237 studied outages to set the TTC of the path for the corresponding seasonal time
 238 periods.

239 For West of Garrison, for the seasons or time periods in which the seasonal studies
 240 have not been completed, the most recent year's seasonal study results will be used
 241 for setting the TTC for the path.

242 For Northern Intertie South to North, for the seasons or time periods in which the
 243 seasonal studies have not been completed, the most recent year's seasonal study
 244 results will be used for setting the TTC. BPA uses the minimum TTC from the relevant
 245 seasonal studies to set the TTC of the path for periods from the next day and
 246 beyond. For the Real-time horizon, when there are no studied outages, BPA uses the
 247 maximum TTC from the relevant seasonal studies to set the TTC of the path.

248 BPA models Special Protection Systems (BPA uses the term Remedial Action Schemes
 249 or RAS) that currently exist or are projected for implementation within the studied
 250 time horizon. (MOD-029 R1.1.8)

251 The WECC base cases include all series compensation for each line at the expected
 252 operating level. (MOD-029 R1.1.9)

253 BPA uses no other modeling requirements for calculating TTC in addition to those
 254 specified in this document. (MOD-029 R1.1.10)

255 **Process to Determine TTC**

256 BPA adjusts generation and Load levels within the WECC power-flow base cases to
 257 determine the TTC that can be simulated for each of its paths, while at the same time
 258 satisfying all operations planning criteria contingencies, as follows:

259 BPA studies single and multiple contingencies that are relevant to the path being studied.
 260 (MOD-029 R2.1)

261 When modeling normal conditions, BPA models all Transmission Elements in BPA's BAA and
 262 adjacent BAAs at or below 100 percent of their continuous Rating. (MOD-029 R2.1.1)

263 BPA models contingencies as per the current version of "RC West System Operating Limits
 264 Methodology for the Operations Horizon" (RC West SOL Methodology) posted on RC West's
 265 website. (MOD-029 R2.1.2)

266 When modeling contingencies, BPA determines TTCs by stressing the system until flows
 267 exceed emergency Facility Ratings or voltages fall outside emergency system voltage
 268 limits (i.e., the post-Contingency state). If a facility does not have an emergency Facility
 269 Rating, the normal Facility Rating is used. If there is no emergency system voltage limit,
 270 the normal system voltage limit is used. (MOD-029 R2.1.2) By meeting the criteria in the
 271 RC West SOL Methodology, uncontrolled separation should not occur. (MOD-029 R2.1.3)

272 BPA's paths listed below are bi-directional and have studied TTCs in both the prevailing
 273 and non-prevailing direction of flow. (MOD-029 R2.2)

- 274 • Northern Intertie Total
- 275 • Montana-Northwest/West of Garrison
- 276 • La Grande
- 277 • Reno-Alturas NW Sierra

- 278 • California-Oregon AC Intertie
- 279 • Pacific DC Intertie
- 280 • North of Hanford
- 281 • South of Allston

282 All of BPA's other paths are one directional, in the prevailing direction of flow, and have
283 studied TTCs that are established for the prevailing direction of flow. If TTC values for
284 the non-prevailing direction of flow were needed for these paths, BPA would determine
285 these TTC values in accordance with the sub-requirements listed in MOD-029 R2, including
286 MOD-029 R2.2.

287 For paths where TTC varies due to simultaneous interaction with one or more other paths,
288 BPA develops a nomogram, represented either by an equation or its graphical
289 representation, describing the interaction of the paths and the resulting TTC under
290 specified conditions. BPA then calculates a value, based on that nomogram and
291 forecasted System conditions for the time period studied, to develop its TTC values for
292 the affected paths. (MOD-029 R2.4)

293 BPA or the adjacent path TOP identifies when the new or increased TTC for a path being
294 studied by BPA or the adjacent path TOP has an adverse impact on the TTC value of
295 another existing path by modeling the flow on the path being studied at its proposed new
296 TTC level, while simultaneously modeling the flow on the existing path at its TTC level. In
297 doing so, BPA or the adjacent path TOP honors the reliability criteria described above.
298 BPA or the adjacent path TOP includes the resolution of this adverse impact in its study
299 report for the path. (MOD-029 R2.5)

300 BPA has Transmission Ownership Agreements where multiple ownerships of Transmission
301 rights exist on a path. TTC for the affected paths is allocated according to contractual
302 ownership rights. (MOD-029 R2.6)

303 The ratings for BPA's paths whose ratings were established, known, and used in operation
304 since January 1, 1994, have been re-established using updated methods. BPA studies its
305 paths, with the exception of LaGrande, on a periodic basis and reconfirms the rating of
306 each path based on these studies. These ratings are then used to establish the TTC for
307 the path.

308 For the LaGrande path, BPA uses the Accepted Rating of the path as defined in the WECC
309 Path Rating Catalog. BPA's LaGrande path is part of the NW-Idaho path (WECC Path
310 14). The rating of Path 14 was reconfirmed through an updated study in 2010 when the
311 path definition had to be modified due to the addition of the Hemingway Substation by
312 PAC and Idaho Power.

313 BPA creates a study report that describes the TTC applicable to the outages during the
314 studied time period and includes the limiting Contingencies and the limiting cause for the
315 calculated TTC. The RC West SOL Methodology document defines the steps taken and
316 assumptions BPA used to determine TTC for each path. BPA creates a study report for
317 each study it performs. The study report relies on the basic assumptions included in RC
318 West SOL methodology and identifies any changes to those basic assumptions. (MOD-029
319 R2.8)

320 Information regarding TTCs is shared electronically between the appropriate BPA
321 organizations within seven calendar days of the finalization of the study report for the TTCs.
322 BPA sends a notice to all TSPs for the paths listed in Table 1 where there are multiple TSPs
323 prior to limitations in TTCs. (MOD-029 R4)

324 These notices are called Notices of Planned Path Limitation. Where BPA has performed a
325 study, the notice states that the TTC study report is available to TSPs for the specific path
326 within seven calendar days upon request to nercatcstandards@bpa.gov with **TTC Study**
327 **Report Request** in the subject line. Use the **TTC Study Report Request Form** found on BPA's
328 ATC Methodology website to submit the request.

329 A path for which BPA does not perform studies to determine the most current value of TTC is
330 Reno - Alturas NW Sierra (RATS). For RATS, NV Energy determines TTC. The TTC is provided
331 to BPA and BPA then sends a Notice of Planned Path Limitation. (MOD-029 R3)

332 **Calculating Firm Transmission Service for Paths**

333 **Calculating Firm Existing Transmission Commitments (ETC_F)**

334 When calculating ETC_F for all time periods for its paths, BPA uses the following algorithm as
335 specified in MOD-029 R5:

$$336 \text{ETC}_F = \text{NL}_F + \text{NITS}_F + \text{GF}_F + \text{PTP}_F + \text{ROR}_F + \text{OS}_F$$

337 **Where:**

338 **NL_F** is the firm capacity set aside to serve peak Native Load forecast commitments for the
339 time period being calculated, to include losses, and Native Load growth, not otherwise
340 included in Transmission Reliability Margin or Capacity Benefit Margin.

341 BPA does not have any **NL_F**, and thus sets **NL_F** at zero for all of its paths for all time
342 periods. All of BPA's firm Transmission obligations are captured in the **NITS_F**, **PTP_F**, **GF_F**
343 and **ROR_F** components of the ETC_F algorithm.

344 **NITS_F** is the firm capacity reserved for Network Integration Transmission Service serving Load,
345 to include losses, and Load growth, not otherwise included in Transmission Reliability Margin
346 or Capacity Benefit Margin.

347 For BPA's 1:1 paths where **NITS_F** commitments exist to serve Network Load outside BPA's
348 BAA, the firm capacity set aside for **NITS_F** is equal to the Load forecast, which includes
349 losses and Load growth, minus generation outside BPA's BAA that is designated to serve
350 that Load. For BPA's 1:1 paths where **NITS_F** commitments exist to serve Network Load
351 inside BPA's BAA from a forecasted or designated network resource that impacts the path,
352 the firm capacity set aside for **NITS_F** is equal to the amount the resource is
353 forecasted/designated for.

354 For BPA's flow-based paths, BPA accounts for **NITS_F** obligations with a combination of base
355 ETC and interim ETC calculations, as described further in this document.

356 **GF_F** is the firm capacity set aside for grandfathered Transmission Service and contracts for
 357 energy and/or Transmission Service, where executed prior to the effective date of a
 358 Transmission Service Provider's Open Access Transmission Tariff or "safe harbor tariff."

359 The amount of GF_F BPA sets aside across its 1:1 paths is based on the terms of each
 360 individual contract.

361 For BPA's flow-based paths, BPA accounts for GF_F obligations with base ETC calculations,
 362 as described further in this document.

363 **PTP_F** is the firm capacity reserved for confirmed Point-to-Point Transmission Service.

364 In BPA's calculations for 1:1 paths, PTP_F is equal to the sum of the MW Demands of PTP_F
 365 reservations or schedules.

366 For BPA's flow-based paths, BPA accounts for PTP_F obligations with a combination of base
 367 ETC and interim ETC calculations, as described further in this document.

368 For Redirects from conditional short-term firm parent reservations, BPA's ETC accounts
 369 for the parent reservation until the Redirect is confirmed on OASIS. Once the Redirect is
 370 confirmed, BPA's ETC only accounts for the Redirect.

371 For Redirects from long-term firm parent reservations or unconditional short-term firm
 372 parent reservations, BPA's ETC accounts for both the parent reservation and the Redirect
 373 reservation until the Redirect itself is unconditional. Once the Redirect is unconditional,
 374 BPA's ETC only accounts for the Redirect.

375 In some cases, BPA has PTP_F contracts that give customers the right to schedule between
 376 multiple Points of Receipt (PORs) and Points of Delivery (PODs). However, the customer
 377 can only schedule up to the MW amount specified in their contract. Multiple reservations
 378 are created for these special cases to allow BPA to model each POR-to-POD combination.
 379 The amount set aside for these cases does not exceed the total PTP_F rights specified in
 380 the contracts.

381 **ROR_F** is the firm capacity reserved for roll-over rights for contracts granting Transmission
 382 Customers the right of first refusal to take or continue to take Transmission Service when the
 383 Transmission Customer's Transmission Service contract expires or is eligible for renewal.

384 BPA assumes that all of its Transmission Service Agreements eligible to roll-over in the
 385 future will be rolled over. If a Transmission Customer chooses not to exercise its roll-over
 386 rights by the required deadline, BPA no longer holds out capacity for roll-over rights for
 387 that Transmission Customer.

388 **OS_F** is the firm capacity reserved for any other service(s), contract(s), or agreement(s) not
 389 specified above using Firm Transmission Service as specified in the ATCID.

390 BPA has no OS_F and thus sets OS_F at zero for all of its paths for all time periods. All of
 391 BPA's firm Transmission obligations are captured in the NITS_F, PTP_F, GF_F and ROR_F
 392 components of the ETC_F algorithm.

393 Although BPA uses the above algorithm to calculate ETC_F for all of its paths, BPA's ETC_F
394 calculation methodology differs between its 1:1 and flow-based paths. For 1:1 paths, BPA
395 calculates ETC_F by assuming that 1 MW of reserved firm capacity equals 1 MW of ETC_F across
396 that path. For the flow-based paths, BPA calculates ETC_F by summing the base ETC from
397 power-flow ETC studies with interim ETC_F calculated using PTDFs.

398 **Determining base ETC for Flow-Based Paths**

399 **Use of WECC Base Cases to Determine Base ETC**

400 BPA uses the WECC seasonal base cases and modifies them to calculate the base ETC
401 for its flow-based paths. BPA refers to these base cases as ETC Cases.

402 **Determining Base ETC for Heavy Load Base Cases**

403 BPA creates monthly heavy load ETC Cases to calculate base ETC values. BPA's ETC
404 cases are produced using a power flow model that computes how much power will
405 flow over each flow-based path for the assumed Load and generation levels for each
406 time period studied. Counterflows are inherently modeled in these base cases.

407 BPA uses the following assumptions to create heavy load ETC Cases for its base ETC
408 calculations:

409 **System topology:** Normal operating conditions are used. BPA uses the WECC Winter
410 seasonal case for its November through March ETC base cases, the WECC Spring
411 seasonal case for its April and May ETC base cases, and the WECC Summer seasonal
412 case for its June through October ETC base cases.

413 **Load:** BPA uses loads contained in the WECC seasonal base cases for the time periods
414 being studied, along with any updates to those loads BPA may have made after the
415 WECC base cases were received from WECC.

416 • **NITS_F, PTP_F and GF_F:** BPA assumes a 1-in-2 year monthly heavy load forecast in all
417 its monthly ETC cases

418 **Generation:** For the generators in BPA's Balancing Authority or directly
419 interconnected to BPA, BPA uses the following generation assumptions:

420 **FCRPS:** For the FCRPS resources serving NITS_F, PTP_F, and GF_F Long-Term Reservations,
421 generation levels are set using a multiple-step process. For all time periods studied,
422 BPA uses the following process:

- The Columbia Generating Station is assumed to be on-line at full Load in the ETC cases. Generation levels at the Libby, Hungry Horse, Dworshak, and Albeni Falls projects are set based on the requirements set forth in the 2000 Biological Opinion. The generation levels at the Willamette Valley projects⁴ are set at a monthly fleet-aggregate lower 10th percentile of Heavy Load Hour block generation from the planning period of record and adjusted as needed to accurately reflect operations that BPA knows are in place. **Nameplate Adjusted Method:** When creating heavy load ETC Cases, generation levels for all other federal hydro projects⁵ are set by first determining the nameplate for each project and then adjusting such nameplates by outages forecasted for the particular plants. Next in the month of August, the Lower Snake plants (Lower Granite, Lower Monumental, Little Goose, and Ice Harbor) are capped at the observed project outflow over the past ten Augusts. Then multiple generation scenarios are modelled by stressing one of three different “zones” of Federal hydro resources to the nameplate adjusted generation levels described above and scales the generation at the remaining Federal hydro projects to match the sum of the demands for all contracts that call out non-specific Federal hydroelectric projects as PORs after adjusting these demands for the portion served by Columbia Generating Station, Libby, Hungry Horse, Dworshak, Albeni Falls, and the Willamette Valley projects. The Federal PTP demands at each project are then added to this result to obtain the final assumed generation level for each Federal hydro project.

Non-Federal Thermal Generators: Non-federal thermal generators associated with PTP_F, GF_F and NITS_F Transmission Service for BPA’s area and all adjacent TSP areas are set at up to the contract Demand.

Wind Generators:

- **PTP_F:** Wind generators associated with PTP_F Long-Term Reservations are set at the following depending on the scenarios being run:
 - Modeled on at 100 percent of the contract demand for the wind generator; or
 - Modeled off
- **NITS_F:** The flow-based path impacts of wind generators identified as designated network resources in NITS_F contracts or in the NT Resources Memorandum of Agreement in BPA’s area are determined on a flow-based path-by-flow-based path basis and set at the greater of the following:

⁴ Willamette Valley projects include: Big Cliff, Cougar, Detroit, Dexter, Foster, Green Peter, Hills Creek, Lookout Point, and Lost Creek.

⁵ Federal hydro projects include: Grand Coulee, Chief Joseph, Lower Granite, Lower Monumental, Little Goose, Ice Harbor, McNary, John Day, The Dalles, Bonneville.

- The wind generators modeled on at the designated amount of the wind generators; or,
 - The wind generators modeled off and replaced by increasing the FCRPS generation level by the designated amount of the wind generators using the Nameplate Adjusted Method for all ETC cases described above.
- Wind generators designated as network resources in NITS_F contracts for all adjacent TSPs are modeled up to the designated amount.
- **GF_F:** BPA and all of BPA's adjacent TSPs have no GF_F contracts for wind generators.

Behind the Meter Generators: Non-federal resources that do not require Transmission Service over the FCRTS and that are behind the meter are set up to levels used in BPA's process for power system planning studies.

Mid-Columbia Hydro Projects: Generation levels at the non-federal Mid-Columbia hydro projects are set up to 90 percent of their historical output by season.

When creating heavy load ETC cases, if there is more generation than load plus committed exports in the base case, BPA reduces all excess generation pro rata, except for the stressed FCRPS zone. The generation reduction is done to bring generation and load into balance in order to solve the power flow model.

When creating heavy load ETC cases, if there is more load and committed exports than generation in the ETC base case, BPA reduces exports on the COI and Pacific DC Intertie in the ETC base case. This is done to solve the power flow model.

Sensitivity Studies for Heavy Load Base Cases

In calculating its base ETC values, BPA runs ETC case scenarios for three different sensitivities: the Canadian Entitlement Return (CER) obligation modeled on or off, wind resources designated to serve PTP_F and NITS_F on or off, and stressing the three different zones of the FCRPS.

For the FCRPS scenarios, the three "zones" that are stressed individually in the scenarios are made up of the following projects: (i) Upper Columbia zone includes Grand Coulee and Chief Joseph; (ii) Lower Snake zone includes Lower Monumental, Lower Granite, Little Goose, and Ice Harbor; and (iii) Lower Columbia zone includes McNary, John Day, The Dalles and Bonneville.

For the CER Scenarios, BPA models the FCRPS generators delivering or not delivering energy to Canada in the amount specified in the Canadian Entitlement Agreement.

In the CER on scenarios, BPA models the exports to Canada at the Canadian Entitlement Agreement contract level. The FCRPS generation is modeled using the Nameplate Adjusted Method.

In the CER off scenarios, BPA models imports from Canada at the contract rights that customers have across the Northern Intertie N>S. The FCRPS generation is also modeled using the Nameplate Adjusted Method.

497 For the wind resource scenarios, see above for a description of the base ETC
 498 assumptions for wind generators serving PTP_F and NITS_F.

499 Therefore, in its heavy load base ETC sensitivity analysis, BPA models the following 6
 500 scenarios:

- 501 1. Wind modeled off/Upper Columbia stressed
- 502 2. Wind modeled off/Lower Snake stressed
- 503 3. Wind modeled off/Lower Columbia stressed
- 504 4. Wind modeled on/Upper Columbia stressed
- 505 5. Wind modeled on/Lower Snake stressed
- 506 6. Wind modeled on/Lower Columbia stressed

507 All scenarios are run with CER modeled on and off for all months.

508 BPA uses the highest base ETC value calculated from these scenarios in its firm ATC
 509 calculations across the flow-based paths. BPA uses the lowest base ETC value from
 510 these scenarios in its non-firm ATC calculations across the flow-based paths.

511 **Determining Base ETC and Sensitivities for Light Load Base Cases**

512 BPA uses the WECC Winter seasonal light load case as the starting point for its Winter
 513 seasonal light load ETC base case. The ETC from this case is used as the base ETC for
 514 the months of November through March.

515 BPA uses the WECC Summer seasonal light load case as the starting point for its
 516 Summer light load ETC base case. The ETC from the Summer case is used as the base
 517 ETC for the months of June through October.

518 If a WECC Spring seasonal light load case is available, BPA uses that case as the
 519 starting point for its Spring seasonal light load ETC base case. The ETC from this case
 520 is used as the base ETC for the months of April and May. If the WECC Spring seasonal
 521 light load case is not available, the higher of the base ETCs from either the Winter or
 522 Summer case are used as the base ETC for April and May.

523 BPA uses the following assumptions in light load ETC base cases:

- 524 a. System topology: Normal operating conditions are used.
- 525 b. Loads: Loads from the WECC light load cases are used. Beginning with the
 526 Winter 2022 seasonal case and for Montana loads only, BPA compares the loads
 527 in the WECC seasonal light load case with the seasonal light loads supplied by
 528 Montana Power, and uses the lowest of the two values in order to properly
 529 stress the light load case.
- 530 c. Generation: BPA uses generation assumptions from historical data. Canadian
 531 Entitlement is modeled as delivering energy to Canada in the amount specified
 532 in the Canadian Entitlement Agreement.

533 There are two sensitivity studies performed for the light load ETC base cases:

- 534 a. Federal generation east of the path is increased, and a corresponding amount
535 of federal generation west of the path is reduced
536 b. Federal generation east of the path is reduced, and a corresponding amount of
537 federal generation west of the path is increased

538 BPA uses the highest base ETC value calculated from these scenarios in its firm ATC
539 calculations across the flow-based paths where light load cases are utilized. BPA uses
540 the lowest base ETC value from these scenarios in its non-firm ATC calculations across
541 the flow-based paths where light load cases are utilized.

542 **Calculating Interim ETC_F for Flow-based Paths**

543 To calculate the impacts for all NITS_F and PTP_F reservations that were not modeled in the
544 base ETC cases, BPA uses PTDF analysis on the demand in each reservation. PTDF analysis
545 is the fraction of energy (expressed as a percentage or as a decimal) that will flow across
546 BPA's monitored flow-based paths as that energy is injected at a POR (or source) relative
547 to a slack bus, and withdrawn at a POD (or sink) relative to a slack bus, for each flow-
548 based path.

549 PTDF impacts are calculated as per BPA's Transmission Service Requests Evaluation
550 business practice. If a reservation's impact on a flow-based path is determined to be *de*
551 *minimis* per the Transmission Service Requests Evaluation business practice, then BPA
552 deems the impact of the reservation to be zero when calculating ETC_F.

553 The sum of these positive impacts is referred to as the interim ETC_F value, and is added to
554 the base ETC values to produce a final ETC_F value for each time period for each flow-
555 based path.

556 **Outages in PTDF Calculations**

557 BPA calculates PTDFs by adjusting the WECC base cases to include transmission
558 outages in BPA's outage system for BPA's area and any adjacent TSP areas. BPA has
559 no executed coordination Agreements with other TSPs. (MOD-001 R3.6)

560 When the Raver-Paul 500 kV line is out of service, the PTDFs that BPA calculates and
561 uses for the Raver-Paul path are based on the monitored lines for this path that are
562 outlined in Table 2. This allows BPA to properly manage the Raver-Paul path in this
563 outage situation.

564 **Outage Criteria in ETC Calculations**

565 BPA uses the outage planning timeline described in the "Outages" section. The
566 following criteria determine which outages are incorporated into BPA's hourly, daily
567 and monthly ETC calculations: (MOD-001 R3.6)

568 **Hourly ETC Calculations**

569 For its hourly ETC calculations, BPA uses hourly PTDFs published at least once per
570 day. Transmission outages for Transmission Lines, sections of Transmission Lines,
571 transformers and taps are used to set branches as *open* in the appropriate base
572 case for the hour being calculated.

573 **Daily ETC Calculations**

574 For its daily ETC calculations, BPA uses the most recent PTDFs published for the
575 hour ending 11 of each day, since hour ending 11 tends to have the highest
576 coincidence of outages. Therefore all Transmission outages scheduled to occur
577 during the hour ending 11, regardless of the duration of the outage, impact daily
578 ETC calculations. (MOD-001 R3.6.1)

579 BPA includes Transmission outages in daily ETC calculations beyond the 10- to 16-
580 day planned outage study period if the outage is officially scheduled in BPA's
581 outage system.

582 **Monthly ETC Calculations**

583 For its monthly ETC calculations, BPA uses the most recent daily PTDFs published
584 for the first Tuesday of that month. BPA includes Transmission outages in monthly
585 ETC calculations beyond the 10- to 16-day planned outage study period if the
586 outage is officially scheduled in BPA's outage system. (MOD-001 R3.6.2)

587 **Source/POR and Sink/POD Identification and Mapping**

588 In the ETC components of its flow-based path ATC calculations, BPA accounts for
589 source and sink for Transmission Service through the following processes:

590 BPA maps the source/POR and sink/POD to the WECC base cases. In this mapping, BPA
591 has assigned network bus points that represent the primary interface for
592 Interconnection with specific generation projects, adjacent electrical Systems or
593 Load-serving entities and trading hubs. Some adjacent electrical Systems have
594 multiple Interconnection points deemed as PORs/sources or PODs/sinks. The mapping
595 of these points is published in the Transmission Service Contract Points list on BPA's
596 OASIS homepage.

597 BPA calculates weighted PTDFs for Sources/PORs as follows:

- 598 1. The PTDF weighting for the FCRPS/BPA Power PTDF varies by time period and path
599 based on stress scenarios. The PTDF weighting is derived from generation
600 forecasts of the federal resources, for calculations for the next hour through
601 approximately two weeks. Beyond this time frame, BPA derives the weighting of
602 the PTDF by applying the generation dispatch determined in the ETC Cases.
603 2. BPA derives the PTDF weighting for the Mid-Columbia bus point by applying the
604 generation dispatch determined in the ETC Cases.
605 3. BPA has grouped the generators in its adjacent BAAs based on the primary
606 interface between each BAA and the generation projects within that BAA
607 (excluding some remote generators that are scheduled via NERC e-Tag). These
608 groupings are assigned weighted PTDFs that represent how the generators
609 participate in the group and are used to evaluate transactions within and between
610 adjacent BAAs that do not include BPAT. BPA derives the PTDF weightings for
611 these points from BAA-provided generation estimates or by applying the generation
612 dispatch determined in the ETC Cases if generation estimates are not available. In

613 the ETC Cases, these generators are modeled up to the long-term firm
614 Transmission rights associated with the generators.

615 BPA calculates weighted PTDFs for Sinks/PODs as follows:

- 616 1. BPA has weighted PTDFs for loads in its adjacent BAAs based on the primary
617 interface between each BAA and the load within that BAA. The weighting is based
618 on how the load is distributed in the BAA.
- 619 2. BPA calculates a weighted PTDF to account for unscheduled Network Integration
620 Transmission Service loads in BPA's BAA that are served from the FCRPS. The
621 weighting is based on the individual load forecasts for the time period being
622 calculated.
- 623 3. BPA calculates a weighted load for all of the BPA Power Services customers that
624 are served via Network Integration Transmission Service agreements. The
625 weighting is based on the individual load forecasts for the time period being
626 calculated.
- 627 4. BPA calculates a weighted load for PNGC Power, which is a Joint Operating Entity
628 made up of several cooperative utilities. The weighting is based on the individual
629 load forecasts for the time period being calculated.

630 BPA calculates one weighted PTDF that applies to the following Source/POR and
631 Sink/POD:

- 632 1. BPA calculates a weighed PTDF for the Western Energy Imbalance Market. This
633 weighting is based on the percentage of Automatic Generation Control response
634 (which could be zero) carried by each plant in the FCRPS.

635 **Calculating Firm Available Transfer Capability (ATC_F)**

636 When calculating ATC_F for its paths for all time periods, BPA uses the following algorithm
637 (MOD-029 R7):

638
$$ATC_F = TTC - ETC_F - CBM - TRM + Postbacks_F + Counterflows_F$$

639 **Where:**

640 ATC_F is the firm Available Transfer Capability for the ATC Path for that period.

641 TTC is the Total Transfer Capability of the ATC Path for that period.

642 ETC_F is the sum of existing firm commitments for the ATC Path during that period.

643 For ATC_F calculations for all time periods, BPA divides ETC_F into the following variables
644 within its ATC software:

645
$$ETC_F = LRES + SRES + LETC - SAdj/ETC \text{ Adjustments}$$

646

647 **Where:**

648 **LRES** is the sum of positive impacts of BPA’s Long-Term Reservations.

649 **SRES** is the sum of positive impacts of BPA’s Short-Term Reservations.

650 **LETC** is used to ensure that the amount of $NITS_F$, GF_F , PTP_F and ROR_F capacity BPA sets

651 aside in the LRES variable for contracts where BPA gives customers the right to schedule

652 the capacity reserved between multiple PORs and PODs does not exceed the total capacity

653 specified in those contracts.

654 LETC is also used to align the ETC calculated in the power flow base case with additional

655 PTDF calculations in order to balance to the standard OATI calculation. This adjustment is

656 derived by comparing two values: a) the impacts of the confirmed PTP_F , GF_F , $NITS_F$ and

657 ROR_F Long-Term Reservations derived from the base ETC Cases and b) the impacts of the

658 same reservations calculated using PTDF Analysis for each flow-based path. The

659 adjustment for each flow-based path is equal to the difference of these two values.

660 Conditional firm reservations are not included in the ETC Cases and therefore are also not

661 included in this comparison.

662 **SADJ/ETC Adjustments** is the variable BPA uses to make adjustments to ETC_F not

663 captured in LRES or SRES.

664 BPA applies one such adjustment to allow for deferral competitions, as required in Section

665 17.7 of BPA’s OATT. When a deferral reservation is confirmed, BPA applies an SADJ/ETC

666 Adjustment to hold out capacity for the time period deferred, starting at the latter of five

667 months out or the service commencement date of the original reservation, to allow for a

668 competition. At four months out, if no competition is identified, the SADJ/ETC

669 Adjustment is modified to release the capacity for the fourth month out.

670 BPA uses a SADJ/ETC Adjustment to account for a portion of the firm TRM that BPA

671 applies on the NI S>N.

672 BPA also uses SADJ/ETC Adjustments to ensure accurate accounting of ETC_F . These

673 adjustments may be performed to account for situations such as data modeling

674 corrections, and are noted in the descriptions of the adjustments.

675 The following diagram illustrates how the variables in BPA’s ATC software correspond to

676 the variables in the ETC_F algorithm.

$ETC_F =$	$NITS_F$	+	GF_F	+	PTP_F	+	ROR_F
	↓		↓		↓		↓
	LRES		LRES		LRES		LRES
	+				+		
	SRES				SRES		
	+		+		+		+
	LETC		LETC		LETC		LETC
	-		-		-		-
	SADJ/ETC Adjustments		SADJ/ETC Adjustments		SADJ/ETC Adjustments		SADJ/ETC Adjustments

677 **CBM** is the Capacity Benefit Margin for the ATC Path during that period.

678 BPA does not maintain CBM and thus sets CBM at zero for all of its paths for all time
679 periods.

680 **TRM** is the Transmission Reliability Margin for the ATC Path during that period.

681 The description of how BPA implements TRM can be found in BPA's TRMID, which is posted
682 on BPAs website.

683 **Postbacks_F** are changes to firm Available Transfer Capability due to a change in the use of
684 Transmission Service for that period, as defined in Business Practices.

685 BPA automatically recalculates ETC_F to account for changes to Transmission Service
686 Requests (such as request types of Recall and Redirect and annulments). Since these
687 types of changes to Transmission Service Requests are captured in ETC_F, BPA sets
688 Postbacks_F at zero for all time periods when calculating ATC_F.

689 **Counterflows_F** are adjustments to firm Available Transfer Capability as determined by the
690 Transmission Service Provider and specified in their ATCID.

691 BPA does not include confirmed Transmission reservations, expected interchange or
692 internal flow counter to the direction of the path being calculated in its ATC_F calculations.
693 BPA's rationale is that it does not want to offer firm ATC due to counterflow that may not
694 be scheduled as this could lead to curtailments of Firm Transmission Service in the Real-
695 time horizon. (MOD-001 R3.2) Therefore BPA sets Counterflows_F at zero for all of its paths
696 for all time periods.

697 For flow-based paths, counterflows are automatically modeled in the base ETC cases. In
698 instances where the power flow study results in a negative base ETC value, BPA uses zero
699 as the base ETC for purposes of calculating ATC_F. This is done to ensure that BPA does not
700 make capacity available as a result of counterflows that may or may not materialize in
701 real-time.

702 **Calculating Non-Firm Transmission Service for BPA's Paths**

703 BPA sells six non-firm Transmission products. Those products are:

704 1. **NITS_{NF6}**. This is a non-firm Transmission product available only to Transmission
705 Customers with NITS Agreements. It is the highest quality of Non-Firm Transmission
706 Service in that it is the last Non-Firm Transmission Service that would be Curtailed, if
707 necessary.

708 2. **PTP_{NF5}**. This is a non-firm Transmission product available only to Transmission
709 Customers with PTP service Agreements. PTP_{NF5} is the fifth Non-Firm Transmission
710 Service that would be Curtailed, if necessary.

711 3. **PTP_{NF4}**. This is a non-firm Transmission product available only to Transmission
712 Customers with PTP service Agreements. PTP_{NF4} is the fourth Non-Firm Transmission
713 Service that would be Curtailed, if necessary.

- 714 4. **PTP_{NF3}**. This is a non-firm Transmission product available only to Transmission
715 Customers with PTP service Agreements. PTP_{NF3} is the third Non-Firm Transmission
716 Service that would be Curtailed, if necessary.
- 717 5. **PTP_{NF2}**. This is a non-firm Transmission product available only to Transmission
718 Customers with PTP service Agreements. PTP_{NF2} is the second Non-Firm Transmission
719 Service that would be Curtailed, if necessary.
- 720 6. **PTP_{NF1}**. This is a non-firm Transmission product available only to Transmission
721 Customers with PTP service Agreements. PTP_{NF1} is the first Non-Firm Transmission
722 Service that would be Curtailed, if necessary (this Transmission Service has the highest
723 likelihood of being Curtailed).

724 BPA calculates ETC_{NF} and ATC_{NF} for each of these products.

725 **Calculating Non-Firm Existing Transmission Commitments (ETC_{NF})**

726 BPA calculates ETC_{NF} for all time periods for a path using the following algorithm as specified
727 in MOD-029 R6:

$$728 \text{ETC}_{\text{NF}} = \text{NITS}_{\text{NF}} + \text{GF}_{\text{NF}} + \text{PTP}_{\text{NF}} + \text{OS}_{\text{NF}}$$

729 **Where:**

730 **NITS_{NF}** is the non-firm capacity set aside for Network Integration Transmission Service serving
731 Load (i.e., secondary service), to include losses, and Load growth not otherwise included in
732 Transmission Reliability Margin or Capacity Benefit Margin.

733 In BPA's calculations, this is comprised of the NITS_{NF6} Transmission product. BPA's NITS_{NF6}
734 calculation does not include losses or Load growth, since losses and Load growth are
735 already set aside as firm capacity in NITS_F.

736 **GF_{NF}** is the non-firm capacity set aside for grandfathered Transmission Service and contracts
737 for energy and/or Transmission Service, where executed prior to the effective date of a
738 Transmission Service Provider's Open Access Transmission Tariff or "safe harbor tariff".

739 BPA does not have any grandfathered non-firm Transmission Service obligations and thus
740 sets GF_{NF} at zero for all of its paths for all time periods.

741 **PTP_{NF}** is non-firm capacity reserved for confirmed Point-to-Point Transmission Service.

742 In BPA's calculations, PTP_{NF} includes the PTP_{NF5}, PTP_{NF4}, PTP_{NF3}, PTP_{NF2} and PTP_{NF1}
743 Transmission products.

744 **OS_{NF}** is the non-firm capacity reserved for any other service(s), contract(s), or agreement(s)
745 not specified above using non-firm transmission service as specified in the ATCID.

746 BPA has no OS_{NF} and thus sets OS_{NF} at zero for all of its paths for all time periods.

747 ETC_{NF} for 1:1 paths is calculated by assuming that 1 MW of reserved and/or scheduled capacity
748 results in 1 MW of impact across the 1:1 path.

When calculating ETC_{NF} for flow-based paths, BPA sums the positive impacts of reservations and/or schedules as determined by PTDF analysis, per BPA's Transmission Service Requests Evaluation business practice. When calculating ETC_{NF} for flow-based paths when using reservations, BPA deems *de minimis* impacts of the reservations to be zero. However, when calculating ETC_{NF} for flow-based paths when using schedules, all impacts are accounted for in ETC_{NF}, regardless of whether their PTDF analysis impact is deemed to be *de minimis* or not.

Calculating Non-Firm Available Transfer Capability (ATC_{NF})

BPA uses two time horizons when calculating ATC_{NF} for all of its paths: Real-time and Beyond Real-time. The Real-time horizon begins at 10 p.m. each day for the 24 hours in the next day. ETC_F and ETC_{NF} for the Real-Time horizon are calculated using schedules and reservations that have not yet been scheduled. The beyond Real-time horizon includes hourly for the hours after those included in the Real-time period as well as daily and monthly calculations. ETC_F and ETC_{NF} for the time horizon beyond Real-time are calculated using reservations.

BPA calculates ETC_{NF} and ATC_{NF} for the six non-firm Transmission products associated with NERC Curtailment priorities as follows:

1. **ATC_{NF6}:** ATC_{NF6} is calculated using an ETC_{NF} that only includes the NITS_{NF6} transmission product.
2. **ATC_{NF5}:** ATC_{NF5} is calculated using an ETC_{NF} that includes the NITS_{NF6} and PTP_{NF5} transmission products.
3. **ATC_{NF4}:** ATC_{NF4} is calculated using an ETC_{NF} that includes the NITS_{NF6}, PTP_{NF5} and PTP_{NF4} transmission products.
4. **ATC_{NF3}:** ATC_{NF3} is calculated using an ETC_{NF} that includes the NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, and PTP_{NF3} transmission products.
5. **ATC_{NF2}:** ATC_{NF2} is calculated using an ETC_{NF} that includes the NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, PTP_{NF3} and PTP_{NF2} transmission products.
6. **ATC_{NF1}:** ATC_{NF1} is calculated using an ETC_{NF} that includes the NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, PTP_{NF3}, PTP_{NF2} and PTP_{NF1} transmission products.

When calculating ATC_{NF} for its paths for the real-time and beyond real-time horizons, BPA uses the following algorithm as specified in MOD-029 R8:

$$ATC_{NF} = TTC - ETC_F - ETC_{NF} - CBMS - TRM_U + Postbacks_{NF} + Counterflow_{NF}$$

Where:

ATC_{NF} is the non-firm Available Transfer Capability for the ATC Path for that period.

BPA calculates six ATC_{NF} values as described above.

TTC is the Total Transfer Capability of the ATC Path for that period.

784 **ETC_F** is the sum of existing firm commitments for the ATC Path during that period.

785 The section below outlines how BPA calculates ETC_F for all of its paths for the beyond
786 Real-time and the Real-time horizons.

787 **ETC_F for the Beyond Real-Time Horizon**

788 For ATC_{NF} calculations for the beyond Real-time horizon, BPA utilizes the following
789 variables within its ATC software to calculate ETC_F:

790 **ETC_F = LRES + SRES - SADJ/ETC Adjustments + NFETC**

791 **Where:**

792 **LRES** is the sum of positive impacts of BPA's Long-Term Reservations.

793 **SRES** is the sum of positive impacts of BPA's Short-Term Reservations.

794 **SADJ/ETC Adjustments** is the variable used to make adjustments to ETC_F not captured
795 in LRES or SRES.

796 BPA applies one such adjustment to allow for deferral competitions, as required in
797 Section 17.7 of BPA's OATT. When a deferral reservation is confirmed, BPA applies a
798 SADJ/ETC Adjustment to hold out capacity for the time period deferred, starting at
799 the latter of five months out or the service commencement date of the original
800 reservation, to allow for a competition. At four months out, if no competition is
801 identified, the SADJ/ETC Adjustment is modified to add back capacity for the fourth
802 month out.

803 BPA uses SADJ/ETC Adjustments to ensure accurate accounting of ETC_F. These
804 adjustments may be performed to account for situations such as data modeling
805 corrections, and are noted in the descriptions of the adjustments.

806 **NFETC** is used to ensure that the amount of NITS_F, GF_F, PTP_F and ROR_F capacity BPA
807 sets aside in the LRES variable for contracts where BPA gives customers the right to
808 schedule the capacity reserved between multiple PORs and PODs does not exceed the
809 total capacity specified in those contracts.

810 NFETC is also used to align the ETC calculated in the power flow base case along with
811 additional PTDF calculations in order to balance to the standard OATI calculation.

812 This adjustment is derived by comparing two values: a) the impacts of the PTP_F, GF_F
813 and NITS_F Long-Term Reservations derived from the base ETC Cases and b) the impacts
814 of the same reservations calculated using PTDF Analysis for each flow-based path. The
815 adjustment for each flow-based path is equal to the difference of these two values.
816 Conditional firm reservations are not included in the ETC Cases and therefore are also
817 not included in this comparison.

818 The following diagram illustrates how the variables in BPA's ATC software correspond
819 to the variables in the ETC_F algorithm for the Beyond Real-time horizon.

ETC_F =	NITS_F	+	GF_F	+	PTP_F	+	ROR_F
	↓		↓		↓		↓
	LRES		LRES		LRES		LRES
	+				+		
	SRES				SRES		
	+		+		+		+
	NFETC		NFETC		NFETC		NFETC
	-		-		-		-
	SADJ/ETC Adjustments		SADJ/ETC Adjustments		SADJ/ETC Adjustments		SADJ/ETC Adjustments

ETC_F for the Real-Time Horizon

For ATC_{NF} calculations for the Real-time horizon, BPA divides ETC_F into the following variables within its ATC software:

$$ETC_F = SCH^+_7 + ASC^+_7 + RADJ/ETC \text{ Adjustment}$$

Where:

SCH⁺₇ is the sum of the positive impacts of schedules that reference confirmed NITS_F, GF_F and PTP_F reservations for the ATC Path for that period. The energy profile of the schedule is used except for the schedule types of Dynamic, Capacity and Pseudo-tie.

ASC⁺₇ is the sum of the positive impacts of dynamic schedules that reference confirmed NITS_F, GF_F and PTP_F reservations for the ATC Path for that period. The transmission profile of the schedule is used for the schedule types of Dynamic, Capacity and Pseudo-tie.

RADJ/ETC Adjustment: BPA uses RADJ/ETC adjustments to ensure accurate accounting of ETC_F. These adjustments may be performed to account for situations such as data modeling corrections.

The following diagram illustrates how the variables in BPA's ATC software correspond to the variables in the ETC_F algorithm for the Real-time horizon. ROR_F is not included in ETC_F for the Real-time horizon because ROR_F is not relevant for the Real-time horizon.

ETC_F =	NITS_F	+	GF_F	+	PTP_F
	↓		↓		↓
	SCH⁺₇		SCH⁺₇		SCH⁺₇
	+		+		+
	ASC⁺₇		ASC⁺₇		ASC⁺₇
	+		+		+
	RADJ/ETC Adjustment		RADJ/ETC Adjustment		RADJ/ETC Adjustment

840 **ETC_{NF}** is the sum of existing non-firm commitments for the ATC Path during that period.

841 The section below outlines how BPA calculates ETC_{NF} for all of its paths for the beyond
842 Real-time and the Real-time horizons.

843 **ETC_{NF} for the Beyond Real-Time Horizon**

844 For ATC_{NF} calculations for the beyond Real-time horizon, ETC_{NF} is reflected as the
845 following variable within BPA's ATC software:

846 **ETC_{NF} = RRES_{6,5,4,3,2,1}**

847 **Where:**

848 **RRES_{6,5,4,3,2,1}** is the sum of the positive impacts of all confirmed NITS_{NF6}, PTP_{NF5}, PTP_{NF4},
849 PTP_{NF3}, PTP_{NF2} and PTP_{NF1} reservations.

850 The following diagram illustrates how the variables in BPA's ATC software correspond
851 to the variables in the ETC_{NF} algorithm for the Beyond Real-time horizon.

ETC_{NF} =	NITS_{NF}	+	PTP_{NF}
	↓		↓
	RRES₆		RRES_{5,4,3,2,1}

852 **ETC_{NF} for the Real-Time Horizon**

853 For ATC_{NF} calculations in the Real-time horizon, ETC_{NF} is reflected as the following
854 variables within BPA's ATC software:

855 **ETC_{NF} = SCH⁺_{6,5,4,3,2,1} + ASC⁺_{6,5,4,3,2,1}**

856 **Where:**

857 **SCH⁺_{6,5,4,3,2,1}** is the sum of the positive impacts of schedules referenced to confirmed
858 NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, PTP_{NF3}, PTP_{NF2} and PTP_{NF1} reservations, plus the sum of the
859 positive impacts of confirmed NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, PTP_{NF3}, PTP_{NF2} and PTP_{NF1}
860 reservations that have not yet been scheduled. Once these reservations are
861 scheduled, the schedule is used for ETC_{NF}, thereby adding back the difference
862 between the reservation and schedule amounts to ATC_{NF}. The energy profile of the
863 schedule is used except for the schedule types of Dynamic, Capacity and Pseudo-tie.

864 **ASC⁺_{6,5,4,3,2,1}** is the sum of positive impacts of dynamic schedules referenced to
865 confirmed NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, PTP_{NF3}, PTP_{NF2} and PTP_{NF1} reservations, plus the sum of
866 the positive impacts of confirmed NITS_{NF6}, PTP_{NF5}, PTP_{NF4}, PTP_{NF3}, PTP_{NF2} and PTP_{NF1}
867 reservations that have not yet been scheduled. Once these reservations are
868 scheduled, the schedule is used for ETC_{NF}, thereby adding back the difference
869 between the reservation and schedule amounts to ATC_{NF}. The transmission profile of
870 the schedule is used for the schedule types of Dynamic, Capacity and Pseudo-tie.

The following diagram illustrates how the variables in BPA's ATC software correspond to the variables in the ETC_{NF} algorithm for the Real-time horizon.

$ETC_{NF} =$	$NITS_{NF}$	+	PTP_{NF}
	↓		↓
	SCH^+_6		$SCH^+_{5,4,3,2,1}$
	+		+
	ASC^+_6		$ASC^+_{5,4,3,2,1}$

CBM_s is the Capacity Benefit Margin for the ATC Path that has been scheduled during that period.

BPA does not maintain CBM and thus sets CBM_s at zero for all of its paths for all time periods.

TRM_u is the Transmission Reliability Margin for the ATC Path that has not been released for sale (unreleased) as non-firm capacity by the Transmission Service Provider during that period.

The description of how BPA implements TRM can be found in BPA's TRMID, which is posted on BPAs website.

$Postbacks_{NF}$ are changes to non-firm Available Transfer Capability due to a change in the use of Transmission Service for that period, as defined in Business Practices.

The section below outlines how BPA calculates $Postbacks_{NF}$ for all of its paths for the beyond Real-time and the Real-time horizons.

$Postbacks_{NF}$ for the Beyond Real-time horizon

BPA automatically recalculates ETC_{NF} to account for changes to Transmission Service Requests (such as request types of Recall and annulments) for the Beyond Real-time horizon. Since these types of changes to Transmission Service Requests are captured in ETC_{NF} , BPA sets $Postbacks_{NF}$ at zero for this horizon.

$Postbacks_{NF}$ for the Real-time Horizon

BPA automatically recalculates ETC_{NF} to account for changes to Transmission Service Requests (such as request types of Recall and annulments) for the Real-time Horizon. Since these types of changes to Transmission Service Requests are captured in ETC_{NF} , BPA sets $Postbacks_{NF}$ at zero for this horizon for all paths with the exception of COI N>S.

For ATC_{NF} calculations for the COI N>S path in the Real-time horizon, BPA uses a $Postbacks_{NF}$, expressed as $RADJ/ETC$. For its hourly COI N>S non-firm calculations, BPA posts back any unused share of non-firm capacity that is available to BPA by capacity ownership and other Agreements for the COI N>S, if needed to prevent Curtailments.

901 **Counterflow_{NF}** are adjustments to non-firm Available Transfer Capability as determined by
902 the Transmission Service Provider and specified in its ATCID.

903 Since a schedule provides assurance that the transaction will flow, all counterflows
904 resulting from firm and non-firm Transmission schedules, excluding tag types dynamic,
905 pseudo and capacity, are added back to ATC_{NF} in the Counterflows_{NF} component. (MOD-001
906 R3.2)

907 In BPA's ATC_{NF} calculations, Counterflows_{NF} is expressed as SCH^{7,6,5,4,3,2,1}, which is the sum
908 of schedules flowing in the direction counter to the direction of the path.

909 Counterflows are modeled in the ETC Cases used to determine ETC_F for BPA's flow-based
910 paths. In instances where the power flow study results in a negative base ETC value, BPA
911 uses zero as the base ETC for purposes of calculating ATC_{NF}. This is done to ensure that
912 BPA does not make capacity available as a result of counterflows that may or may not
913 materialize in real-time

914 In some cases, the amount of Counterflows_{NF} exceeds the sum of the ETC_F and ETC_{NF},
915 which, when added to TTC, results in ATC_{NF} greater than TTC.

916 Note: The variable RADJ/ETC is also used to respond to a BPA dispatcher order to change ATC
917 values by a specified amount and thereby reduce schedules in-hour when the flow exceeds
918 the TTC.

919 **Adjustments to Flow-based Path ATC Values**

920 There may be instances where BPA needs to perform testing in the production environment of
921 the systems that manage BPA's ATC calculations. In these instances, BPA may adjust its ATC
922 values across the flow-based paths to ensure that Hourly requests are not declined due to
923 lack of ATC across the flow-based paths. BPA will issue a notice to customers with the details
924 prior to performing this testing.

925 **VIII. Data Sources and Recipients**

926 BPA receives data for use in its ATC calculations, and provides data for use in calculating 1:1
927 and flow-based path capabilities through the WECC base case process. BPA also directly
928 receives and provides data, such as outage information and specific Transmission
929 commitments, from and to the following Transmission Service Providers and Transmission
930 Operators: (MOD-001 R3.3, R3.4)

- 931 • Avista Corporation
- 932 • BC Hydro
- 933 • California Independent System Operator
- 934 • City of Tacoma, Department of Public Utilities, Light Division
- 935 • Eugene Water and Electric Board
- 936 • Fortis BC
- 937 • Idaho Power Company
- 938 • Los Angeles Department of Water and Power

- 939 • NV Energy
- 940 • NorthWestern Energy
- 941 • Pacific Gas & Electric
- 942 • PacifiCorp
- 943 • Pend Oreille County Public Utility District No. 1
- 944 • Portland General Electric
- 945 • Public Utility District No. 1 of Chelan County
- 946 • Public Utility District No. 1 of Clark County
- 947 • Public Utility District No. 1 of Douglas County
- 948 • Public Utility District No. 2 of Grant County, Washington
- 949 • Public Utility District No. 1 of Snohomish County
- 950 • Puget Sound Energy, Inc.
- 951 • Sacramento Municipal Utility District
- 952 • Seattle City Light
- 953 • Southern California Edison
- 954 • Transmission Agency of Northern California
- 955 • Western Area Power Administration - Sierra Nevada Region
- 956 • California Independent System Operator

957 IX. Responding to Data Requests

958 Upon official request from any Transmission Service Provider, Planning Coordinator,
 959 Reliability Coordinator, or Transmission Operator for any data from the list below, solely for
 960 use in the requestor's ATC or AFC calculations, BPA will begin to make the data available
 961 within 30 calendar days of receiving the request.

- 962 • Expected generation and Transmission outages, additions, and retirements
- 963 • Load forecasts
- 964 • Unit commitments and order of dispatch, to include all designated resources (BPA does
- 965 not have resources that are committed or have the legal obligation to run)
- 966 • Firm NITS and non-firm NITS (i.e. Secondary Service)
- 967 • Firm and non-firm Transmission reservations
- 968 • Grandfathered obligations
- 969 • Firm roll-over rights
- 970 • Any firm and non-firm adjustments applied by BPA to reflect parallel path impacts
- 971 • Power flow models and underlying assumptions
- 972 • Contingencies, provided in one or more of the following formats:
 - 973 ○ A list of Elements
 - 974 ○ A list of flow-based paths
 - 975 ○ A set of selection criteria that can be applied to the WECC base cases used by
 - 976 BPA

- 977 • Facility Ratings
 - 978 • Any other service that impact ETCs
 - 979 • Values of CBM and TRM for all paths
 - 980 • Values of TTC and ATC for all paths
 - 981 • Source and sink identification and mapping to the WECC base cases
- 982 BPA will make this data available on the schedule specified by the requestor (but no more
- 983 frequently than once per hour, unless mutually agreed to by the requestor and Bonneville).
- 984 For a Transmission Service Provider, Planning Coordinator, Reliability Coordinator, or
- 985 Transmission Operator to officially request data to use in ATC or AFC calculations, the
- 986 requestor must fill out the **Data Request Form** (MOD-001 R9) found on BPA's ATC
- 987 Methodology website. The completed request form must be sent to
- 988 nercatcstandards@bpa.gov with **Data request Form** (MOD-001 R9) in the subject line. (MOD-
- 989 001 R9)

990 X. ATCID Revisions

991 BPA will notify the entities contained in ATCID TP Distribution List when implementing a new

992 or revised ATCID and make its current ATCID available. (MOD-001 R4, R5)

993 XI. Version History

ATCID Revision History			
Version	Date Revised	Description of Changes	Prepared by
1.0	03/30/2011	BPA ATCID FINAL	S Long L Trolese C Etheridge
2.0	05/11/2011	P. 31 Table 2 BPA Flowgates: Corrected the definition of the West of McNary Flowgate by replacing McNary - Horse Heaven 230 kV line with Harvalum - Big Eddy #1 230 kV line in the West of McNary Flowgate Transmission Line Components	L Trolese
3.0	08/11/2011	P. 7 line 114: Revised frequency of hourly calculations from at least three times per hour to at least once per hour.	L Trolese

ATCID Revision History			
		<p>P. 12-13 Table 1 BPA Paths: Added Montana-Northwest to the Path Name; added Garrison 500 kV 1 and 2 to the Transmission Line Components of the West of Garrison E>W and W>E Paths and revised the Montana Intertie Transmission Line Component from Broadview - Garrison 500 kV 1 and 2 to Townsend-Garrison 500 kV 1 and 2 to be effective October 1, 2011.</p> <p>P. 17 lines 395-397: Revised sentence to include Montana Intertie as an ATC Path that is limited by contract.</p> <p>P. 18 lines 440-445: Revised paragraph to include Montana Intertie as an ATC Path where another TOP sets the TTC.</p> <p>P. 19 line 483-486 and P. 40 line 1102: Added forecasted network resources to be included in Network Integration Transmission Service</p> <p>P. 20 line 517: corrected reference from ETC to ATC_{NF}.</p> <p>P. 20 line 531; P. 22 ETC_F variable diagram, P. 25 line 669, P. 26 ETC_F variable diagram, P. 47 line 1324, P. 49 ETC_F variable diagram, P. 53 line 1493 and P. 54 ETC_F variable diagram: Corrected ETC_F formula to subtract SAdj/ETC Adjustments instead of add it.</p> <p>P. 27 lines 724-726 and P. 55 lines 1549-1551: Updated reason for why ROR_F is not included in the real-time horizon.</p> <p>P. 29 line 789: Deleted “implemented” from which schedules impact counterflows.</p> <p>P. 30 lines 798-800: Added a note describing the variable RADJ/Congestion Management and how it impacts ATC calculations.</p> <p>P. 44: Corrected footnote 7 to align it with the reference.</p> <p>P. 47: Deleted language referring to including adjacent TSP reservations in interim ETC_{Fi}.</p> <p>P. 53 lines 1517-1521: Added paragraph describing LETC that was mistakenly left out in Version 1.0 and 2.0.</p> <p>P. 57 line 1604: Deleted “confirmed” from which schedules impact counterflows.</p>	

ATCID Revision History			
		<p>P. 58: Replaced table delineating the NERC registered functions of the entities with a bulleted list of the entities.</p> <p>Appendix A: Updated List of Contracts and Specific Paths with Shared Ownership to indicate the Colstrip Project on the Montana Intertie Path will no longer be represented as an allocation agreement after October 1, 2011.</p> <p>Appendix C: Updated the SOL Methodology.</p> <p>Appendix D: Updated BPA's NITS, GF, and PTP Agreements to include the Colstrip Project and other contracts that have been added since February 3, 2011.</p>	
4.0	09/30/2011	P. 27 lines 720 - 722 and ETC _F variable diagram: added new use for RADJ/ETC Adjustments variable.	L Trolese
5.0	10/20/2011	<p>P. 39 lines 1068-1070, P. 40 lines 1077-1079 and lines 1087-1089: Removed language referring to the month of August.</p> <p>P. 40 lines 1103-1114, P. 41 lines 1118-1128 and P. 48 lines 1325-1331: added paragraph describing how BPA accounts for the impacts of its adjacent TSP firm NITS and PTP Transmission Service.</p>	L Trolese
6.0	11/1/2011	<p>P.31 Table 2 BPA Flowgates: Added the McNary - John Day #2 500 kV line to the West of McNary Flowgate definition.</p> <p>Appendix C: Updated the SOL Methodology.</p>	L Beckman
7.0	11/10/2011	P. 40 line 1103 and P.41 line 1118: Changed effective date from November 8 th to no later than November 15, 2011 for incorporating adjacent TSP TSRs into AFC calculations.	L Beckman
8.0	02/03/2012	P. 35 line 907: Added paragraph describing how BPA prepares for the addition of a flowgate.	L Beckman
9.0	02/13/2012	<p>P. 5, P. 22, P. 29: Defined BPA's TRM practice for the Northern Intertie S>N Path.</p> <p>P. 20 line 528 and P. 23 line 597: Replaced NI Holdout in the ATC_F formula with TRM.</p>	L Beckman

ATCID Revision History			
10.0	02/14/2012	<p>P. 30-31 Table 2 BPA Flowgates: Corrected the following flowgate definitions:</p> <p>South of Allston Flowgate: replaced Astoria-Seaside 115kV; and Lewis & Clark-Astoria Tap 115kV line with Astoria-Seaside 115kV; and Clatsop 230/115kV line in the South of Allston Flowgate Transmission Line Components.</p> <p>North of John Day Flowgate: replaced Wautoma-John Day 500kV line with Wautoma-Rock Creek 500kV line in the North of John Day Flowgate Transmission Line Components.</p> <p>Cross Cascades North Flowgate: Added the Anderson Canyon-Beverly Park 115 kV line to the Cross Cascades North Flowgate Transmission Line Components.</p> <p>Cross Cascades South Flowgate: replaced Hanford-Ostrander 500kV line with Wautoma-Ostrander 500kV line, replaced McNary-Santiam 230kV line with Jones Canyon-Santiam 230kV line, replaced Parkdale-Troutdale 230kV with Big Eddy-Troutdale 230kV, and added Bethel - Round Butte 230 kV line in the Cross Cascades South Flowgate Transmission Line Components.</p> <p>West of McNary Flowgate: replaced McNary-Santiam 230kV line with Jones Canyon-Santiam 230kV line in the West of McNary Flowgate Transmission Line Components.</p>	L Beckman
11.0	02/22/2012	P. 8 line 166: Removed reference to Northwest Power Pool (NWPP) Outage Coordination Processes, dated 01/29/09.	L Beckman
12.0	03/01/2012	<p>P. 32 Table 2 BPA Flowgates: Added the West of John Day Flowgate and Transmission Line Components.</p> <p>P. 32 Figure 3 BPA Network Flowgate Map: Added the West of John Day Flowgate.</p>	L Beckman
13.0	03/27/2012	<p>P. 31 Table 2 BPA Flowgates: Removed the Anderson Canyon-Beverly Park 115 kV line from the Cross Cascades North Flowgate Transmission Line Components.</p> <p>P. 4 line 52: Moved MOD 008-01 to the Methodologies Selected section.</p>	L Beckman
14.0	04/11/2012	Appendix A: Updated Portland General Electric's Intertie Agreements to reflect the termination of the AC/DC Exchange Agreement that will be effective on 7/1/2012.	L Beckman
15.0	05/15/2012	<p>P. 38 lines 1013-1015, P. 41 lines 1107-1115, P. 46 lines 1282-1289, P. 50 lines 1402-1407 and P. 50 lines 1422-1427: Moved language regarding the PTDF Analysis impact and percentage used in the Western Interconnection-wide Congestion Management Procedure.</p> <p>P. 40 lines 1084-1093: Added generation estimates as the source of the PTDF weightings.</p>	L Beckman L Trolese

ATCID Revision History			
		<p>P. 42 lines 1157-1159 and P. 51 lines 1433-1436: Added description of how BPA accounts for schedules in ETC_{Fi}.</p> <p>P. 44-45: Removed the definition of and all reference to the “94th Percentile Method”.</p> <p>P. 47 lines 1305-1315 and P. 52 lines 1476-1486: clarified that LRES and SRES include reservations for all of BPA’s adjacent TSP areas, filtered to reduce duplicates.</p>	
16.0	06/27/2012	P. 40 lines 1084-1086: changed sentence to describe that BPA is grouping the generators for all of its adjacent BAAs instead of just a subset.	L Trolese
17.0	08/15/2012	<p>P. 31 Table 2 BPA Flowgates: Added outage conditions flowgate definition for Raver-Paul (N>S).</p> <p>P. 29-30 lines 774,787,799: Replaced RADJ variable descriptions with RADJ/ETC.</p>	L Beckman
18.0	09/20/2012	<p>P. 12 line 299 Table 1 BPA Paths: Removed Transmission Line Components and RAS.</p> <p>P. 23-28 lines 599-607, 633, 750 and 752: Added new Non-firm products to formulas used for calculating Non-firm ETC and Non-firm ATC.</p> <p>P. 50-56 lines 1403-1411, 1428, 1479-1484 and 1604: Added new Non-firm products to formulas used for calculating Non-firm ETC and Non-firm AFC.</p> <p>Appendix C: Updated the SOL Methodology.</p>	L Beckman
19.0	10/18/2012	P. 48 and 53, lines 1334 and 1513: Removed language on accounting for Conditional Firm products in the ETC Adjustment.	L Beckman
20.0	10/24/2012	<p>P. 32 Table 2 BPA Flowgates: Added the South of Boundary Flowgate and Transmission Line Components.</p> <p>P. 33 Figure 3 BPA Network Flowgate Map: Added the South of Boundary Flowgate.</p>	L Beckman
21.0	11/14/2012	<p>P. 8, lines 159-167: Updated BPA’s allocation processes for the Columbia Injection (N>S) and Wanapum Injection (N>S) flowgates.</p> <p>P. 31 Table 2 BPA Flowgates: Replaced Bettas Road - Covington #1 230kV with Bettas Road - Covington #1 230kV in the Cross Cascades North Flowgate Transmission Line Components.</p>	L Beckman

ATCID Revision History			
		<p>P. 31-33 Table 2 BPA Flowgates: Added the North of Hanford (S>N), South of Allston (S>N), Columbia Injection (N>S), Wanapum Injection (N>S) and West of Lower Monumental (E>W) Flowgates in Transmission Line Components, effective Nov. 30, 2012.</p> <p>P. 45 and 46, lines 1245-1248, 1286-1288 and 1318: Added documentation describing ETC calculation practices for light load ETC Cases.</p> <p>P. 55 and 56, lines 1564, 1574-1576 and 1580: Added RETC variable and definition to calculation formula for ETCFi for the Real-Time Horizon.</p>	
22.0	01/31/2013	Appendix A: Updated Seattle City Light's PNW AC Intertie Ownership Agreement to reflect shared ownership, effective 1/31/13.	L Wickizer
23.0	01/31/2013	<p>P. 5 line 61, P. 22 line 579, P. 23 lines 594-596, P. 29 line 786: Removed BPA's TRM practice for the Northern Intertie S>N Path, effective Feb. 13, 2013.</p> <p>P. 31-33 Table 2 BPA Flowgates: Added the North of Echo Lake (S>N) and South of Custer (N>S) Flowgates and removed the Monroe-Echo Lake Flowgate in Transmission Line Components, effective Feb. 13, 2013.</p> <p>P. 32 Table 2 BPA Flowgates: Added John Day - Marion No. 1 500kV in the West of John Day Flowgate Transmission Line Components, effective Feb. 13, 2013.</p> <p>P.33 Figure 3 BPA Network Flowgate Map: Updated location of the North of Echo Lake (S>N) and South of Custer (N>S) Flowgates.</p>	L Wickizer
24.0	02/12/2013	P. 5 lines 52-57, P. 22 lines 581-584, P. 23 lines 597-601, P. 29 lines 788-793, P. 30 lines 826-830: Added BPA's updated TRM practice for the Northern Intertie Path.	L Wickizer
25.0	03/04/2013	P. 58 lines 1651-1655: Added BPA's practice for Converting AFC to ATC.	L Wickizer
26.0	03/25/2013	<p>P.32 Table 2 BPA Flowgates: Updated flowgate names on OASIS.</p> <p>P. 41 lines 1102-1112: Added documentation for Mid-Columbia generators in the weighted PTDF description.</p>	L Wickizer

ATCID Revision History			
27.0	05/01/2013	<p>P. 38-39 lines 993-1002: Updated BPA's process for mapping and incorporating outages into the WECC base case.</p> <p>Appendix A: Updated Avista's West of Hatwai Ownership Agreement number.</p>	L Wickizer
28.0	05/15/2014	<p>P. 7-8 lines 123-127, 131-134, 142-143, 149-150: Language clarification in Limiting Assumptions section.</p> <p>P. 9 lines 178-203: Updated BPA's process for outage planning.</p> <p>P. 10 lines 209 - 222: Language clarification on Daily and Hourly TTC and TFC Calculations.</p> <p>P. 10-11 lines 238 - 272: Language clarification on SOL Priorities Used to Set TTC and TFC.</p> <p>P. 37, lines 884-885, 892: Language clarification on SOL study process.</p> <p>P. 38, lines 952-953: Language clarification on SOL study process.</p> <p>P. 39, line 965: Language clarification on TFC calculation.</p> <p>Appendix C: Updated the SOL Methodology.</p>	M Olczak
29.0	05/31/2014	<p>P. 33 Table 2 BPA Flowgates: Added outage conditions flowgate definition for West of McNary.</p>	M Olczak
30.0	7/24/2014	<p>P. 32 Table 2 BPA Flowgates: Changed Olympia - South Tacoma 230kV to St. Clair - South Tacoma 230kV in the Raver-Paul section.</p> <p>P. 36 Table 3 Interfaces with BAs Adjacent to BPA: Added Gridforce Energy Management as a BA-BA interconnection.</p> <p>P. 36 Table 3 Interfaces with BAs Adjacent to BPA: Updated to show Portland General Electric and Seattle City Light also have connections accounted for with paths that use the Rated System Path Methodology.</p> <p>P. 5 Clarification on number of BAs within the WECC area</p>	J Ofstead
31.0	09/13/2014	<p>P. 33 Table 2 BPA Flowgates: Updated West of McNary flowgate definition during outages.</p>	J Ofstead

ATCID Revision History			
32.0	10/21/2014	P. 7, lines 106-108: Language clarification on ATC and AFC hourly firm calculations	J Ofstead
33.0	12/05/2014	P. 18, lines 410-417: Language updated to reflect the current practice of setting TTCs in the non-prevailing flow direction on BPA's ATC Paths that use the Rated System Path Methodology.	L. Proctor
34.0	06/01/2015	<p>P. 4, lines 32-38: Deleted lines regarding registration amongst other organizations other than NERC.</p> <p>P.5-6, lines 67-101: Deleted section on "BPA's Use of Western Electricity Coordinating Council Base Cases".</p> <p>P. 9, lines 179-238: Added "...and Criteria for TTC and TFC Calculations" to section title and deleted "Timeline" from title. Deleted all content in section except "Outage planned and the policy are posted to the Outage Plans website (http://www.oatiaoasis.com/bpat/index.html) (MOD-001 R3.6.1) (MOD-001 R3.6.2)"</p> <p>P15, lines 319-321: Added language to reflect the tracking and monitoring of the previous 12 months of curtailments due to the issuance of generation limits and inclusion of ATC calculations in Table 1.</p> <p>P.16, lines 347-349: Deleted language to reflect current practices.</p> <p>P. 16, line 350: Added "...and phase shifters".</p> <p>P. 16, lines 352-359: Deleted language regarding phase shifters.</p> <p>P. 18, lines 362-363: Deleted language regarding BPA engineers running variations on WECC base cases.</p> <p>P.17, lines 371-373: Added language on base cases being updated with a Mid-Season update.</p> <p>P. 17, lines 388-389: Deleted reference to Table 1 for RAS.</p> <p>P. 17, line 391: Deleted language reference to BPA transmission lines with series compensation.</p> <p>P. 18, lines 401-404: Deleted language on modeling contingencies.</p>	L. Proctor

ATCID Revision History			
		<p>P. 18, lines 416-417: Deleted language related to Montanan Intertie Path limitation by Colstrip Project and NorthWestern Energy is the TO and set TTC for this ATC Path.</p> <p>P. 18, lines 423-424: Deleted the reference to ATC paths for which BPA expresses TTC by nomogram.</p> <p>P. 18, lines 431-432: Deleted language related to the process defined by WECC's OTCPC.</p> <p>P. 18, line 437: Deleted reference to LaGrande Path.</p> <p>P. 18, lines 438-442: Deleted language related to path ratings.</p> <p>P. 19 lines 460-484: Updated language on TTC ratings.</p> <p>P. 21, lines 538: Deleted reference to Appendix D, which has been deleted from this document.</p> <p>P.30, lines 820-822: Deleted reference to DSO 319.</p> <p>P.31, lines 851-852: Table 2, BPA Flowgates: Deleted facilities monitored during outage conditions for West of McNary.</p> <p>P. 35, lines 863-866: Deleted "History or Flowgates".</p> <p>P. 35, line 873 and line 87: Replaced "included as" with "protected for by".</p> <p>P. 36, lines 883-884: Deleted "Note" on multiple interfaces.</p> <p>P. 39-40, lines 1002, 1007 and 1008: Replaced "WECC" with "Peak".</p> <p>P. 40, lines 1032-1033: Updated language for accuracy.</p> <p>P. 40, lines 1037 and 1049: Replaced "calculated" with "published".</p> <p>P. 41, lines 1064: Added "...the PTDF difference is...".</p> <p>P. 44, lines 1164, 1175, 1190 and 1195: Deleted reference to BPA not having coordination agreements with other TSP.</p> <p>P.45, lines 1199: Added language to reflect BPA does not have coordination agreements with other TSPs.</p>	

ATCID Revision History			
		<p>P. 45, line 1213: Deleted reference to Appendix D, which has been deleted.</p> <p>P. 63-64, line 1745 and chart: Deleted ATCID TP distribution list chart and updated language in line 1745 to reflect ATCID TP Distribution List.</p> <p>Appendix A: Updated chart listing contracts and specific paths with shared ownership, specifically Montana-NW /West of Garrison and added Montana Intertie and La Grande.</p> <p>Appendix B: Deleted - Significant Equipment Operating Bulletin 19.</p> <p>Appendix D: Deleted BPA NITS, GF and PTP Agreements list from 2011.</p> <p>Appendix E: Deleted DSO 319</p>	
35.0	08/10/2015	<p>Language updated to reflect completion of the bulk MOD-030 Mitigation Plan.</p> <p>P. 3, lines 7-8: Deleted “or Available Flowgate Capability (AFC)”</p> <p>P. 4, lines 29-36: Deleted “MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, and MOD-030-02 variously apply to the Transmission Operator (TOP) and Transmission Service Provider (TSP)”, “Transmission Operator”, and deleted lines 34-36; added “Transmission Operator”, Transmission Service Provider” and “among other registrations”; added “a” to line 38; lines 39-47: deleted “described in NERC Standard as its methodology”, “determine” and “interties, External interconnections and some Paths internal to BPA’s Network”; added “calculate”, “ATC Paths”, “for these paths” and “VIII, and IX”; deleted lines 44-47; line 50: deleted “in its ATC calculation”; line 53: “in its ATC and AFC calculations” and “or Flowgates”; line 54: deleted “Not Selected”; line 55 deleted; lines 56-59: deleted “has elected”, “to”, “described in NERC Standard MOD-028-1 as its methodology to determine ATC for any of its ATC Paths” and “MOD-028-01”, added “does”, “(MOD-028-2), the Flowgate Methodology (MOD-030-2), or a Capacity Benefit Margin (CBM) (MOD-004-1)” and “these standards are”; deleted lines 60-63</p>	L. Proctor

ATCID Revision History			
		<p>P. 5: lines 64, 65, 66, 69, 72, 75, 77, 78, 79 and 84: deleted “and AFC”; line 66 deleted “and Flowgate”; line 79-80 “MOD-030-R10”; line 81 deleted “MOD-030 R10.1”; line 82 deleted “MOD-030 R10.2”; line 83 deleted “MOD-030 R10.3”; line 84 deleted “or TFC”; lines 88-89 deleted “The studied assumptions are also used in determining the”, “for ATC purposes” and “and the TFC for AFC purposes”; added to line 89 “BPA uses these SOLs as the”; added to lines 97-100 “BPA may use more recent system condition information in its SOL calculations when the studies are updated after the ETC Cases are performed. However, this is not considered a difference in assumptions.”</p> <p>P. 6: lines 102-120 deleted; deleted “Flowgate” in lines 122-140; added “Network Paths” to lines 130, 134 and 136; added “Transfer” to line 133</p> <p>P. 7: lines 144, 147, 150, 152, 161, 178, and 186 deleted “and TFC”; deleted “or Flowgate” in line 173, 178 and 186; added “Network Paths” in line 174</p> <p>P. 8: deleted “and TFCs” in lines 188, 194, 198; replaced “TFC” with “TTC” in lines 193 and 200; added “Network Path” in line 201; added “for the Paths listed in Table 1” in lines 207-208; deleted line 212</p> <p>P. 11: added “NV Energy” in line 243, and deleted “Sierra Pacific Power Company (SPPC) in line 254</p> <p>P. 12: line 284 deleted “MOD-029”</p> <p>P. 25: lines 693, 697, 698, 701 and in chart replaced “Flowgate” with “Network Path”; line 694 and 698-699 replaced “Flowgate” with “Rated System Path”; line 696 replaced “30” with “29” and “02” with “1a”</p> <p>P. 26, 27 and 28: replaced “Flowgate” with “Network Path” in chart</p> <p>P. 28: replaced “Flowgate” with “Network Path” in lines 703 and 706; changed “Figure 1” to “Figure 2”; deleted lines 708-712</p> <p>P. 30: deleted lines 713-723 and chart</p> <p>P. 31: deleted lines 724-766</p>	

ATCID Revision History			
		<p>P. 32: deleted lines 767-796; replaced “Flowgate” with “Transfer” in line 797 and “TFC” with “TTC”; added lines 798-801; deleted line 801-802 beginning with “BPA establishes.....”; deleted lines 803-806</p> <p>P. 32: deleted lines 807-820; added “(ETC)” to line 821; replaced “AFC” with “ATC” in lines 824 and “Flowgates” with “Network Paths”; deleted “(MOD-030 R5.1)” in lines 824; added “base” to line 825; added lines 825-829 beginning with “The assumptions...”; added “to” in line 835; deleted “(MOD-030 R5-2)” in line 836; deleted “(MOD 030 R3.1)” in line 843; and deleted “(MOD 030 R3.4)” in line 847</p> <p>P. 33: added “therefore does not” to line 848; deleted “(MOD 030 R3.5)” in line 849-850; replaced “AFC” with “ATC” in lines 853 and 858; deleted “(MOD 303 R3.2)” in line 855; deleted “(MOD 030 R3.3)” in lines 860; added “base” to line 863; and deleted “(MOD 303 R5.2)” in lines 867 and 872</p> <p>P. 34: replaced “Flowgates” with “Network Paths” in lines 900, 902, 904, 906, 907 and 090; added “Network Path” to lines 914 and replaced “AFC” with “ATC”; and deleted “(MOD-030 R1.2.3)” in lines 922</p> <p>P. 35: added “Network Path” and replaced “AFC” with “ATC” in lines 923, 926, 945 and 948; deleted “MOD” reference in lines 928, 932, 937, 942, 944, 950, 954, 959, 963 and 965</p> <p>P. 36: deleted “MOD” references in lines 975-976, 983, 992 and 1003; replaced “Flowgate” with “Network Path” in lines 995; deleted “as described in” in line 996 and replaced “MOD-030 R6” with “(MOD-030 R5)” in line 996</p> <p>P. 37: deleted references to MOD in lines 1008, 1010, 1012, 1030, 1033, 1035, 1037, 1040 and 1041-1042; and replaced “Flowgates” with “Network Paths” in lines 1017-1018, 1027 and 1040</p> <p>P. 38: replaced “Flowgates” with “Network Paths” in lines 1043, 1053 and 1063; added “Network Path” and replaced “AFC” with “ATC” in line 1056; added “base” to line 1064; and deleted MOD references in lines 1066 and 1075</p> <p>P. 39: replaced “Flowgates” with “Network Paths” in line 1082; deleted MOD references in lines 1082 and 1085-1086; deleted “power flow” from line 1093 and added “ETC”</p>	

ATCID Revision History			
		<p>P. 40: replaced “Flowgates” with “Network Paths” in lines 1127 and 1129-113-; deleted MOD references in lines 1121-1122, 1126, 113601137, 1141, 1144-1145 and 1147-1149</p> <p>P. 41: added “base” in lines 1151, 1154 and 1157; replaced “Flowgates” with “Network Paths” in lines 1181 and 1183; added “Network Path” in line 1182 and replaced “AFC” with “ATC”; and changed “Table 4” to “Table 3” in line 1187</p> <p>P. 42: replaced “Flowgates” with “Network Paths” in lines 1197, 1200, 1204 and 1206; deleted references to MOD in lines 1198 and 1206; added “Transfer” in lines 1199, 1204 and 1206; replaced “AFC” with “ATC” in lines 1199, 1200, 1202 and 1204; added “(MOD-029 R7)” in line 1201</p> <p>P. 43: replaced “Flowgate” with “Transfer” in lines 1208, 1220, 1225, 1229 and 1233; replaced “TFC” with “TTC” in line 1209; replaced “Flowgates” with “Network Path” in lines 1210-1211; and deleted “base” I line 1219</p> <p>P, 44: replaced “Flowgate” with “Network Path” in lines 1246, 1247, 1256, 1258-1259, 1260, 1262, 1263, 1267-1269 and 1269; deleted MOD reference in 1255’ changed “AFC” to “ATC” in line 1264 and 1267</p> <p>P. 45: changed “AFC” to “ATC” in lines 1271, 1278, 1280, 1283 and 1307; replaced “Flowgate” with “Network Path” in lines 1272, 1277, 1278 and 1282; replaced “Flowgate” with “Transfer” in line 1274</p> <p>P. 46: replaced “Flowgate” with “Network Path” in lines 1309 and 1330; deleted “as described in MOD-030 R7” in line1311; added “(MOD-029 R6)” to line 1311; and deleted references to MODs in lines 1316, 1322, 1325, 1327, 1337 and 1343</p> <p>P. 47: replaced “Flowgate” with “Network Path” in lines 1346, 1348, 1353-1354 and 1360; removed “(MOD-030 R7.7)” in line 1345; added “Network Path” to line 1356 and replaced “AFC” with “ATC”; replaced “Flowgate” with “Transfer” in line 1358; replaced “AFC” with “ATC” in lines 1358, 1359, 1367, 1369, 1377, 1379 and 1381</p>	

ATCID Revision History			
		<p>P. 48: replaced “AFC” with “ATC” in lines 1382, 1385, 1387, 1389 and 1400; replaced “Flowgate” with “Network Path” in lines 1382, 1387-1388, 1391, 1396, 1397-1398; replaced “TFC” with “TTC” in line 1385; replaced “Flowgate” with “Transfer” in lines 1387, 1391, 1393, 1409 and 1414; added “Network Path” to line 1400; and deleted “base” from line 1413</p> <p>P. 49: replaced “Flowgate” with “Transfer” in lines 1418 and 1422; replaced “Flowgate” with “Network Path” in lines 1435 and 1436</p> <p>P. 50: added “Network Path” in lines 1445 and 1467 and changed “AFC” to “ATC”; deleted MOD reference in line 1451; replaced “Flowgate” with “Network Path” in lines 1463 and 1464</p> <p>P. 51: added “Network Path” to line 1481 and replaced “AFC” with “ATC”; and replaced “Flowgate” with “Network Path” in line 1497</p> <p>P. 52: replaced “Flowgate” with “Network Path” in lines 1498, 1499, 1501, 1502, 1507, 1508, 1510, 1519 and 1524; replaced “Flowgate” with “Transfer” in lines 1503 and 1512; replaced “AFC” with “ATC” in lines 1507, 1514, 1519, 1521, 1525, 1527; replaced “TFC” with “TTC” in lines 1521, 1525, 1526 and 1527; and deleted lines 1528-1532</p> <p>P. 53-57: added lines 1339-1516</p> <p>P. 58: deleted “and AFC” in line 1713; changed “Nevada Power” to “NV Energy” in line 1726; deleted “(PAC)” from line 1729; and deleted “Sierra Pacific Power Company” from line 1740</p> <p>P. 59: replaced “Flowgates” with “Network Path” in line 1762; deleted “and Flowgates” in line 1766; and deleted line 1767</p>	
36.0	8/28/15	<p>Moved Appendix B: System Operating Limit Methodology for the Operations Horizon; Appendix 1 - TPL-001-0.1 System Performance Under Normal Conditions; and Appendix 2 - TPL-001-WECC-RBP-2.1 into a separate document titled “System Operating Limit Methodology for the Operations Horizon “ and posted on the same website as the ATCID at: http://www.bpa.gov/transmission/Doing%20Business/Pages/default.aspx under the ATC Methodology.</p>	L. Proctor

ATCID Revision History			
37.0	9/29/15	Deleted reference to the Appendix B SOL in line 253 and added the SOL website address on BPA's ATC Methodology website in lines 255-257; deleted lines 258-263 regarding prevailing and non-prevailing directions of flow (MOD-029 R2.2) and inserted new language; removed reference to Appendix B: SOL in line 253 and added link to the SOL in line 25; and deleted in Appendix A for the COI, under the Contract Party Seattle City Light "EDF Trading North America LLC and Southern California Edison Company (Effective 1/31/2013)", under Contract Number deleted "13ZZ-15826 (formerly" and added under Contract Description, Consent Agreement, Contract Party "Under consent agreement and EDF Trading North American LLC".	L. Proctor
38.0	11/02/15	Removed reference to Appendix B in line 298 and added link to SOL; updated Table 2, BPA Network Paths table beginning on line 656 for the North of John Day On OASIS: NOJDAY path changed from Wautoma-Ostrander to Wautoma-Knight and the Cross Cascades South on OASIS: C-CACS_S changed from Wautoma-Ostrander to Knight-Ostrander and deleted in Appendix A the Contract Party Seattle City Light Consent Agreement Contract Number 10TX-15107 from the COI path.	L. Proctor
39.0	12/07/15	Updated Outage Plan website link in line 104-105 from OASIS http://www.oatioasis.com/bpat/index.html to http://www.gpa.gov/transmission/Reports/Pages/Proposed-Outages.aspx ; moved "(MOD-001 R3.6.1) (MOD-001 R.3.6.2)" to line 115; and added outage language in lines 106-115.	L. Proctor
40.0	1/03/16	<p>p. 12, lines 241-255: Replaced "beyond two weeks" with "from the next day and beyond" and "periods within the next two weeks" with "the Real-time horizon" and added "On West of Garrison" and "On Northern Intertie South to North, for the seasons or time periods in which the seasonal studies have not been completed, the last year's seasonal study results will be used for setting the TTC for the relevant Path. "</p> <p>p. 17, lines 430-435: Added "BPA also uses SADJ adjustments on the Northern Intertie Path 3 S>N. These adjustments are used to account for uncertainties on the path caused by simultaneous interaction with paths COI and NOH. The SADJ is being used temporarily while BPA tests and implements an additional 450MW TRM value for this path. BPA will stop using SADJ for this purpose on NI S>N once testing of the additional TRM value is complete and it is implemented."</p>	L. Proctor

ATCID Revision History			
		<p>p. 21, lines 564-569: Added “In addition, BPA uses SADJ adjustments on the Northern Intertie Path 3 S>N. These adjustments are used to account for uncertainties on the path caused by simultaneous interaction with paths COI/NOH. The SADJ is being used temporarily while BPA tests and implements and additional 450MW TRM value for this path. BPA will stop using SADJ for this purpose on NI S>N once testing of the additional TRM value is complete and it is implemented.”</p> <p>p. 24, lines 647-649: Added “50 MW “ and “However, BPA does release the additional 450 MW TRM for the Northern Intertie Path S>N as non-firm capacity.”</p>	
41.0	9/06/2016	<p>p. 11, line 243: Added “On West of Garrison,”; line 249: Added “On Northern Intertie South to North,”; lines 252-253: Added “from the next day and beyond.” and “the Real-time horizon”</p> <p>p. 16, line 430-431: Added “SADJ” and “reflect the TRM across this path that”; deleted lines 433-436</p> <p>p. 20, line 565: Added “SADJ”, “reflect the TRM across this path that” and “and”; deleted lines 567-570</p> <p>p. 23, Deleted lines 648-650; added in lines 650-652: “BPA does not release the TRM Due to simultaneous path interactions for the Northern Intertie Path S>N as non-firm capacity, but does not release the remaining TRM as non-firm capacity”</p>	L. Proctor
42.0	11/01/2016	<p>Table of Contents: Deleted section IX. BA to BA Interconnection Methodology per BPA decision to no longer utilize this methodology</p> <p>p. 26, Table 2, BPA Network Paths starting on line 693: Added to Paul-Allston on OASIS: PAUL_ALSN, column Transmission Line Components “During outage conditions of the Paul-Allston #2 500kV line with either of the Paul-Napavine #1 or Napavine-Allston #1 500kV lines, the following lines are monitored: Napavine-Allston #1 500kV; Paul-Allston #2 500kV; Longview-Chehalis #1 & #3 230kV; Holcomb-Naselle #1 115kV</p> <p>p.34, lines 930-931: Deleted “and light load ETC Cases for the month of January”</p>	L. Proctor

ATCID Revision History			
		<p>p. 36-37, lines 967-1001: Replaced “90th Percentile Method” with “Nameplate Adjusted Method”; replaced “each project’s 90th percentile of historic generation by project and month” with “the nameplate for each project and then adjusting such nameplates by outages forecasted for the particular plants. Next in the month of August, the Lower Snake plants (Lower Granite, Lower Monumental, Little Goose and Ice Harbor) are capped at the observed project outflow over the past ten Augusts.”; deleted lines 975-986; added lines 986-995; deleted lines 998-1001</p> <p>p. 37, lines 1007-1011: Replaced “modeled at up to 80 percent of the wind generators’ contract Demands for BPA’s area and all adjacent TSP area” with “set at the greater of the following: Modeled on the 100 percent of the contract demand for the wind generator; or Modeled off and replaced by the “Balancing Logic Method”</p> <p>p. 37, line1020: Replaced “90th Percentile” with “Nameplate Adjusted” and “on p. 35” with “above</p> <p>p. 37, lines 1032-1035: Deleted “the Mid-Columbia Hydro Projects by 50 percent of the excess generation and FCRPS generation by the other 50 percent of the; added “Prorata, except for the stress FCRPS zone, see below”; and replaced “90th Percentile” with “Balancing Logic”</p> <p>p. 38, lines 1039-1041: Deleted lines</p> <p>p. 38, 1043-1051: Replaced “two” with “three”; replaced “NITSfi” with “PTPfi and NITSfi” and “and stressing the three different zones of the FCRPS. For the FCRPS scenarios, the three “zones” that are stressed individually in the scenarios are made up of the following projects: (i) Upper Columbia zone includes Grand Coulee and Chief Joseph; (ii) Lower Snake zone includes Lower Monumental, Lower Granite, Little Goose, and Ice Harbor; and (iii) Lower Columbia zone includes McNary, John Day, The Dalles, Bonneville.</p> <p>p. 38, lines 1055-1056 and lines 1059-1060: Replaced “90th Percentile” with “Nameplate Adjusted”</p> <p>p. 38, lines 1062-1063: Deleted “NITSfi” and replaced “p. 39” with “above”</p> <p>p. 38-39, lines 1064-1086: Replaced “four” with “12”; updated scenarios on lines 1066-1077; deleted lines 1078-1080; added language starting in line 1080-1086 ; deleted line 1092</p> <p>p. 41, Added lines 1135-1142</p>	

ATCID Revision History			
		<p>p. 46, Added lines 1322-1329</p> <p>p. 49-53, lines 1376-1553: Deleted section IX. BA to BA Interconnection Methodology per BPA decision to no longer utilize this methodology.</p>	
43.0	11/14/2016	<p>p. 9, lines 185-192: Deleted language regarding the tracking and monitoring of issuance of gen limits. Modified language in regards to adding new ATC paths to be more general.</p> <p>p. 9. Lines 190-192: Added "if new" and "are identified and implemented. Table 1 will be updated to reflect the new ATC Paths."</p> <p>p.34, lines 925-926: Added "and light load ETC Cases for the month of January":</p>	L. Proctor
44.0	4/1/2017	<p>p.7, Line 136: Remove "and TFC," to correct an oversight when changes were made in version 35 to remove all references to flowgates, TFCs and AFCs.</p> <p>pps. i, 5 - 9, 14-16, 27: All other modifications are made to incorporate changes to align the ATCID with changes resulting from 1) revisions to Peak Reliability's SOL Methodology v.8.1; and 2) changes in TOP and IROL standards that are effective April 1, 2017. As of April 1, 2017, BPA will continue to use SOLs as TTCs for ATC calculations for stability limited paths; various system conditions will be used to develop TTCs for thermally limited paths.</p> <p>Appendix A: Removed.</p>	A. Heredia
45.0	9/19/2017	<p>p. 11, Added lines 335-336</p> <p>p. 12, line 339: Added "When modeling contingencies"</p>	L. Proctor

ATCID Revision History			
		<p>p. 12, lines 343-349: Added “When modeling contingencies” and “until flows exceed emergency Facility Ratings or voltages fall outside emergency system voltage limits (i.e., the post-Contingency state) and deleted “one of the following reliability constraints is encountered: 1) In the pre-Contingency state, flows exceed normal Facility Ratings or voltages fall outside normal system voltage limits; or (2) In the post-Contingency state, flows exceed emerging Facility Ratings or voltages fall outside emergency system voltage limits.” and “The contingencies studied to determine the post-Contingency state are posted on Peak Reliability’s secure website https://www.peakrc.org.”.</p>	
46.0	4/01/2018	<p>p. 4, line 111: Deleted “See Appendix A for a list of contracts and specified Paths with shared ownership.”</p> <p>p. 11, lines 308-312: Deleted “BPA uses the minimum SOL from the relevant seasonal studies to set the TTC of the Path for periods beyond two weeks.”; “within the next two weeks”; “maximum”; “mw”; “SOL”; and “seasonal” from “seasonal studies”. Added “all time”; “MW”; “value” and “seasonal” to “seasonal TTC”. Line 332 deleted “always credible”.</p> <p>p. 34, line 999: Removed “June”.</p> <p>p. 38-39, lines 1111-1136: Changed “12” to “6”. Removed “CER modeled one/” from lines 1113-1118; Deleted lines 1119-1124; Deleted “two seasonal groupings” and “Early and”. Added “with CER modeled off” and “with CER modeled on for the last 3 scenarios”. Lines 1127, 1128 and 1130: Replaced “24” with “15”. Table, row month June, under “Base ETC Values Used” column, changed “June” to “May”.</p> <p>p. 40, line 1179: Deleted “June”.</p> <p>p. 46, line 1366: Deleted “June”.</p>	L. Proctor
47.0	10/12/2018	<p>p. 23, lines 711-713: Minor simplification of language for clarity.</p>	M. Olczak

ATCID Revision History			
48.0	10/31/2018	p.16 and p.20, removed references to TRM values being accounted for as SADJ. BPAT will no longer use SADJs to account for TRM beginning 11/1//2018.	M. Olczak
49.0	06/01/2019	p. 49, lines 1460 – 1465: added a section on adjustments to ATC values on Network Paths when testing in BPA's production systems is necessary.	M. Olczak
50.0	08/14/2019	<p>P.16, line 505 and P.23, line 701 – detail of how BPA implements TRM has been removed from the ATCID. See the TRMID for TRM information.</p> <p>p.23, line 712 – BPA has updated its “PostbacksNF for the Real-time Horizon” section. BPA will no longer be using a Miles City postback, due to the implementation of the TRM across West of Garrison E>W.</p> <p>BPA is discontinuing the use of RETC in BPA's ETC calculation. References to the RETC variable have been removed from the document.</p>	M. Olczak
51.0	09/10/2019	<p>p.29 – removed references to BPA's Outage to Base Case Mapping document. The mapping of outages to the WECC base case is contained in BPA's Transmission Reference Entity Data system.</p> <p>p.30, line 802 – specifies that BPA updates its Hourly PTDFs at least once per day for hourly ETC calculations</p> <p>p.30, line 808 – clarifies that BPA uses Daily PTDFs published for hour ending 11 of each day in its Daily ETC calculations</p> <p>p.30, lines 812 – 814 and 816 – 819 – clarifies which generation and transmission outages are included in BPA's daily and monthly ETC calculations</p>	M. Olczak
52.0	11/01/2019	<p>p.11: deleted the statement related to West of Garrison that read “For all time periods, when there are no studied outages, BPA uses a TTC of 2000 MW E>W and the maximum value from the relevant studies to set the seasonal TTC of the Path W>E.” This statement is no longer applicable as of 8/14/2019. Please see OASIS for TTC values.</p> <p>p.12, lines 333 – 335 and 342, p.13, lines 388-393: changed Peak RC references to RC West</p>	M. Olczak

ATCID Revision History			
		<p>p.13, lines 377 – 387: clarification on study process for ATC Paths with Ratings that were established, known and used in operation since January 1, 1994</p> <p>p.15, Calculating Firm Available Transmission Capability section: removed ATC Firm formulas from end of section since the formula is already stated in line 465</p> <p>p.18, Calculating Non-Firm Available Transfer Capability section: removed ATC Non-Firm formulas from end of section since the formula is already stated in line 601</p> <p>p.29, lines 774 – 777: removed references to Peak RC from this section and clarified the modeling data included in the WECC base cases</p>	
53.0	11/13/2019	<p>ATCID has been updated to reflect that BPA will be calculating base ETC for West of Hatwai using flow-based studies. As such, the following changes have been made:</p> <p>p. 7, removed West of Hatwai from Table 1</p> <p>p. 24, added West of Hatwai to Table 2</p> <p>p. 24, added column to Table 2 entitled “Case used for base ETC calculation.” This column identifies whether BPA is using heavy or light load studies to establish base ETC_{Fi} for each path.</p> <p>p. 33, line 932: BPA has renamed this section “Determining Base ETC_{Fi} for Heavy Load Base Cases.” All information on light load cases has been removed from the section.</p> <p>p. 35, line 1018: BPA has renamed this section “Sensitivity Studies for Heavy Load Base Cases” to clarify that these sensitivity studies only apply to heavy load cases.</p> <p>p. 37, line 1059: BPA has added a section entitled “Determining Base ETC_{Fi} and Sensitivities for Light Load Base Cases.” This section provides information on the assumptions and sensitivities for BPA’s light load case studies.</p> <p>BPA has removed references to adjustments that BPA had been making for West of Hatwai to hold out NITS capacity for the Western Montana hydro projects; these obligations are now included in BPA’s base ETC_{Fi} studies for West of Hatwai and the adjustments are therefore no longer needed.</p>	M. Olczak

ATCID Revision History			
		<p>Maps of BPA paths have been removed from the ATCID.</p> <p>Upon evaluation, BPA has determined that the SADJ/ETC adjustments across the West of Garrison path are no longer appropriate. BPA has removed references to these adjustments throughout the document.</p> <p>p. 36, lines 1052-1053: clarification that the difference between the highest and lowest seasonal base ETC_{Fi} values is used to establish a commercial uncertainty margin.</p>	
54.0	01/28/2020	<p>p.12, line 396: corrected email address</p> <p>p.13, line 399: corrected link</p> <p>p.27, lines 716-717 and lines 720-721: simplified wording</p> <p>p.27 – 28: deleted the following language in the “Use of WECC Base Cases to Determine ETC” section, as the language does not reflect BPA’s current process:</p> <p>“BPA updates the relevant WECC base cases with equipment outages which are known and mapped to the WECC base case, as well as newly-energized generation and Transmission for ATC calculations at least once per day for intra-day, next day and days two through 30.</p> <p>BPA updates the relevant WECC base cases with equipment outages which are known and mapped to the WECC base case, as well as newly-energized generation and Transmission for ATC calculations at least once per month for months two through 13.”</p> <p>p.29: In the “PTDF Analysis and De Minimis” section, deleted the sentence reading “Ten percent is the percentage used to curtail in the Western Interconnection-wide congestion management procedure.” This is a simplification of this section and does not impact the methodology related to this topic.</p> <p>p.32: deleted the following language in the “Determining Base ETC_{Fi} for Heavy Load Base Cases” section, as the language does not reflect BPA’s current process:</p> <p>“In ETC Cases, BPA models all of its own NITS_{Fi}, GFF_{Fi} and PTP_{Fi} Long-Term Reservations, as well as those of its adjacent TSPs, active at the time the ETC Cases are produced.</p>	M. Olczak

ATCID Revision History			
		<p>To model the impact of PTPFi long-term reservations for all of its adjacent TSPs, BPA queries a list of PTPFi long-term reservations from the OASIS of its adjacent TSPs. To model the impact of GFFi and NITSFi long-term obligations for all of BPA's adjacent TSPs, BPA contacts its adjacent TSPs and requests a list of their GFFi obligations and a list of their NITSFi with a list of designated network resources with the MW amounts designated to serve Network Service and Native Load.</p> <p>BPA models the NITSFi, GFFi and PTPFi Long-Term obligations of all of its adjacent TSPs to the extent that there are sufficient firm Transmission rights on BPA's or its adjacent TSPs' Transmission Systems to serve the Load."</p> <p>p.49, line 1480: corrected link</p>	
55.0	03/24/2020	<p>p.27, line 720: added the word "seasonal" to clarify which WECC cases BPA uses for its ETC studies</p> <p>p.27, lines 722-724: clarified which load forecasts BPA is using in its ETC studies</p> <p>p.28: streamlined section with removal of sentence stating "See "Determining Base ETC_{Fi}" section for a description of how BPA develops its ETC Cases"</p> <p>p.32, section titled "Determining Base ETC for Heavy Load Base Cases": changes throughout the section to reflect BPA's transition to monthly base ETC studies</p> <p>p.35, lines 1013-1017: removed references to seasonal cases to support BPA's transition to monthly base ETC studies</p> <p>p.35, lines 1028-1029: changed wording to reflect BPA's transition to monthly base ETC studies</p> <p>p.35, lines 1030-1033: changes to reflect that BPA uses the highest base ETC to calculate firm ATC and lowest base ETC to calculate non-firm ATC; reference to commercial uncertainty margin removed</p> <p>p.35-36, lines 1034-1039: changes to reflect BPA's transition to monthly base ETC studies</p> <p>p.36, lines 1041-1047: changes to reflect BPA's transition to monthly base ETC studies</p>	M. Olczak

ATCID Revision History			
		<p>p.37, lines 1060-1064: change to reflect that BPA uses the highest base ETC to calculate firm ATC and lowest base ETC to calculate non-firm ATC; reference to commercial uncertainty margin removed</p> <p>p.38, SADJ/ETC Adjustments section: removed references to SADJs for the commercial uncertainty margin, as this process has been discontinued</p> <p>p.44, SADJ/ETC Adjustment section: removed references to SADJs for the commercial uncertainty margin, as this process has been discontinued and clarified that an SADJ is used to account for BPA's use of the lowest base ETC in the non-firm ATC calculation.</p>	
56.0	05/20/2020	<p>p. 1, lines 23-26: modified the "Long-Term Reservation" and "Short-Term Reservation" definitions to clarify that all requests (including Network Integration) fall into each definition based on duration</p> <p>p.27, lines 721-728: clarification on load and generation forecasts used in BPA's ETC cases</p> <p>p. 28, lines 750-751: slight rewording to clarify PTDF calculation process</p> <p>p.29: removed sentence reading "The source used in BPA's Network Path ATC calculations of transactions for all adjacent TSPs is obtained from the source field if a source is identified, or the POR field if only the POR is identified." This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p> <p>p.30: removed sentence reading "The sink used in BPA's Network Path ATC calculations of transactions for all adjacent TSPs is obtained from the sink field if a sink is identified, or the POD field if only the POD is identified." This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p> <p>p.30: removed section on the weighted PTDF for FCRPS generation in the Idaho Power Company BAA. This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p>	M. Olczak

ATCID Revision History			
		<p>p.31, line 855: conformed the formulas/definitions in the “Calculating Firm Existing Transmission Commitments” section to MOD-029 (section referenced MOD-030 formulas/definitions, which BPA no longer uses). References to calculations of adjacent TSP impacts have been deleted, due to elimination of adjacent TSP impact functionality in OATI.</p> <p>p.32, lines 896-897, 905-906, and 911-912: revised to reflect BPA has transitioned from Summer seasonal ETC study to monthly ETC studies for June through October.</p> <p>p.35, line 1002: revised to reflect BPA has transitioned from Summer seasonal ETC study to monthly ETC studies for June through October</p> <p>p.35-36, Table 3: revised to reflect BPA has transitioned from Summer seasonal ETC study to monthly ETC studies for June through October</p> <p>p.36, lines 1040-1041: removed reference to adjacent TSPs from section. This no longer applies with the elimination of adjacent TSP impact functionality in OATI.</p> <p>p.37, lines 1060-1061: Simplification of LRES and SRES definitions, to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.39, lines 1116-1120: documentation that BPA will use zero as the base ETC when the ETC cases result in a negative base ETC value.</p> <p>p.40, line 1145: conformed the formulas/definitions in the “Calculating Non-Firm Existing Transmission Commitments” section to MOD-029 (section referenced MOD-030 formulas/definitions, which BPA no longer uses). References to calculations of adjacent TSP impacts have been deleted, due to elimination of adjacent TSP impact functionality in OATI.</p> <p>p.42, lines 1221-1222: Simplification of LRES and SRES definitions, to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.43, lines 1262-1265: updated definitions for SCH^+_7 and ASC^+_7 to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.44, lines 1279-1280: updated definition for $RRES_{NF}$ to account for the elimination of adjacent TSP impact functionality in OATI</p>	

ATCID Revision History			
		<p>p.44, lines 1291-1294: updated definitions for SCH^{+6,5,4,3,2,1} and ASC^{+6,5,4,3,2,1} to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.45, lines 1322-1324: updated definition for Counterflows_{NF} to account for the elimination of adjacent TSP impact functionality in OATI</p> <p>p.45-46, lines 1325-1331: documentation that BPA will use zero as the base ETC when the ETC cases result in a negative base ETC value.</p> <p>Throughout the document: conformed ETC and AFC formula terms and definitions from MOD-030 to MOD-029 (i.e. PTP_{FI} to PTP_F) and replaced any references to “flowgates” with the term “network paths.”</p>	
57.0	09/16/2020	<p>p.2, line 38: added Satsop Injection to the list of ATC Paths for which BPA has a TRM</p> <p>p.7-8, Table 1: Added Satsop Injection to the table of BPA's 1:1 ATC Paths</p> <p>p.7, line 235: clarified that this section applies to BPA's 1:1 ATC Paths. Paths listed in this section will be referenced by BPA as 1:1 ATC Paths going forward. References to these paths have been conformed to this new naming convention throughout the ATCID.</p> <p>p.23, line 708: clarified that this section applies to BPA's Flow-Based ATC Paths. Paths listed in this section will be referenced by BPA as Flow-Based ATC Paths going forward. References to these paths have been conformed to this new naming convention throughout the ATCID.</p>	M. Olczak
58.0	09/30/2020	<p>Throughout document, changed references from MOD-029-1a to MOD-029-2a to match current effective NERC standard.</p> <p>p.27: moved some of the language pertaining to how BPA models generation in its ETC base cases from “Use of WECC Base Cases to Determine ETC” section to p.32, lines 916-917. Language has been modified to better reflect process that BPA uses (process has not changed; this is a documentation change only).</p> <p>p.37, line 1081: language describing the LETC variable has been clarified</p>	M. Olczak

ATCID Revision History			
		p.42, line 1240: language describing the LETC variable has been clarified	
59.0	10/21/2020	<p>p.9, line 263: Updated name to match NERC registry</p> <p>p.27, lines 727-735: Added information on loads used in BPA's Winter light load ETC base cases for both BPA's Balancing Authority and outside of BPA's Balancing Authority</p> <p>p.32, lines 905-921: revised to reflect BPA has transitioned from a Winter seasonal ETC study to monthly ETC studies for November through February.</p> <p>p.35, line 1013-1024: revised to reflect BPA has transitioned from a Winter seasonal ETC study to monthly ETC studies for November through February.</p> <p>p.36, "Determining Base ETC and Sensitivities for Light Load Base Cases" section: removed outdated verbiage regarding the balancing of the case.</p>	M. Olczak
60.0	02/17/2021	<p>p.1, lines 6-9: purpose statement has been revised to clarify that BPA's ATCID also documents BPA's Postback Methodology, as required by the NAESB Wholesale Electric Quadrant business practice standards.</p> <p>p.14, line 460: removed page number references to streamline document</p> <p>p.15, line 495: removed page number reference to streamline document</p> <p>p.16, lines 504-507: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p> <p>p.17, line 563: removed page number reference to streamline document</p> <p>p.20, line 640: removed page number reference to streamline document</p>	M. Olczak

ATCID Revision History			
		<p>p.21, line 654: removed page number reference to streamline document</p> <p>p.21, line 670: removed page reference to streamline document</p> <p>p.22, lines 684-698: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p> <p>p.27, lines 731-732: clarifies that BPA uses the loads in the WECC light load cases for BPA's Balancing Authority</p> <p>p.27, lines 734-735: clarifies that BPA uses the loads in the WECC light load and heavy load cases outside of BPA's Balancing Authority</p> <p>p.32, line 905: revised to reflect that BPA has fully transitioned to monthly base ETC cases.</p> <p>p.32, lines 911-14: revised to reflect that BPA has fully transitioned to monthly base ETC cases.</p> <p>p.35, lines 1012-1013: revised to reflect expanded scenarios for March through May</p> <p>p.35, Table 3: Table 3 has been deleted; Table 3 is no longer applicable as BPA has fully transitioned to monthly base ETC cases</p> <p>p.35, lines 1022-1024: documents the starting point for BPA's Summer light load cases and that the Summer light load ETC case is used to set the base ETC for April through October.</p> <p>p.37, lines 1074-1075: change to reflect that the CER PTDF adjustment is only being used for June through October</p> <p>p.38, lines 1101-1104: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p> <p>p.40, line 1174: removed page number reference to streamline document</p>	

ATCID Revision History			
		<p>p.41, lines 1231-1232: change to reflect that the CER PTDF adjustment is only being used for June through October</p> <p>p.44, lines 1302-1306: slight rewording to better align with the NAESB Postback Methodology requirements in the Wholesale Electric Quadrant business practice standards; there has not been a change to BPA's Postback Methodology.</p>	
61.0	02/26/2021	<p>p.20, lines 631-636: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p> <p>p.20-21, lines 661-676: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p> <p>p.29, lines 801-804: removed reservation evaluation and de minimis criteria from the ATCID, and added reference to the Transmission Service Requests Evaluation business practice, which now defines BPA's processes for evaluating Transmission Service Requests.</p> <p>p.32, lines 904-905: clarifies that BPA deems de minimis impacts to be zero when calculating firm ETC using reservations.</p> <p>p.37, lines 1094-1096: minor clarification to language</p> <p>p.40, lines 1175-1178: clarifies that BPA deems de minimis impacts to be zero when calculating non-firm ETC using reservations.</p> <p>p.42, lines 1253-1254: clarifies that BPA deems de minimis impacts to be zero when calculating firm ETC using reservations.</p> <p>p.42, lines 1264-1268: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p> <p>p.43, lines 1284-1285: clarifies that BPA deems de minimis impacts to be zero when calculating non-firm ETC using reservations.</p> <p>p.44, lines 1295-1308: clarification of the SCH and ASC variables, and where energy versus transmission profiles are used</p>	M. Olczak

ATCID Revision History			
62.0	04/08/2021	<p>p.15, lines 490-491: added clarification that BPA uses SADJ across NI S>N to account for a portion of the firm TRM across this path. This is a process clarification and not a change to how the TRM or ATC calculations are performed.</p> <p>p.15, lines 477-480: clarified that the LETC variable is used for $NITS_F$, GF_F, PTP_F and ROR_F in the ETC_F calculation. This is a clarification and not a change to BPA's process.</p> <p>p.15, Table between lines 497 and 498: aligned ETC variables with the OATI variables. This is a formula clarification and not a change to how the ETC calculation is performed.</p> <p>p.19, lines 621-624: clarified that the LETC variable is used for $NITS_F$, GF_F, PTP_F and ROR_F in the ETC_F calculation. This is a clarification and not a change to BPA's process.</p> <p>p.20, Table between lines 629 and 630: aligned ETC variables with the OATI variables. This is a formula clarification and not a change to how the ETC calculation is performed.</p> <p>p.42, Table between lines 1260 and 1261: aligned ETC variables with the OATI variables. This is a formula clarification and not a change to how the ETC calculation is performed.</p>	M. Olczak
63.0	05/12/2021	<p>p.3, footnote: removed reference to North of John Day, as this path has been de-activated; also matched up the names of the paths listed in the footnote to those used in Table 2 on Page 24</p> <p>p.11, line 347 and content previously found between lines 351-352: deleted references to North of John Day, as this path has been de-activated</p> <p>p.24, Table 2: removed North of John Day from table, as this path has been de-activated</p>	M. Olczak
64.0	05/19/2021	<p>p.28, "Outages in ETC Calculations" section: deleted sentences on generation outages in ETC calculations; BPA does not include generation outages in its ETC calculations</p>	M. Olczak

ATCID Revision History			
		<p>p.30, lines 848-853: added specificity that the weighted FCRPS PTDF calculation is based on the stress scenario per path, and clarified the time frame for which generation forecasts are used in the calculation of this PTDF</p> <p>p.33, lines 931-939: revised to explain BPA's transition to a new methodology for modeling the Willamette Valley projects in its ETC cases</p> <p>p.35, line 1019: revised to reflect the scenarios BPA is currently running in the heavy base ETC cases</p> <p>p.37 and p.41: deleted references to CER SADJs, as these SADJs have been replaced by additional base ETC scenarios</p>	
65.0	09/15/2021	<p>Extensive re-organization of the ATCID to combine the 1:1 and Flow-based ATC Path sections into one.</p> <p>p.17, lines 438-444: language addition to account for new OASIS functionality for short-term Redirects to comply with FERC policy adopted in Order 676-I</p>	M. Olczak
66.0	09/29/2021	<p>p.22, p.23 and p.31: removed references to ST non-firm ATC adjustments for lowest base ETC (these adjustments have been replaced with a new non-firm ATC variable, NFETC)</p> <p>p.30, line 891: replaced reference to LETC with new non-firm ATC variable, NFETC</p> <p>p.31, lines 907 and 911: replaced references to LETC with new non-firm ATC variable, NFETC</p> <p>p.31, line 921: replaced references to LETC in the chart with new non-firm ATC variable, NFETC</p>	M. Olczak
67.0	10/20/2021	<p>p.1, line 13: added reference to NAESB WEQ-000</p> <p>p.20, lines 514 and 516: revised to explain BPA's transition to a new methodology for modeling the Willamette Valley projects in its ETC cases</p> <p>p.22, line 601: added the months of November through February for the CER off scenarios</p> <p>p.22, lines 615-619: added specificity to the modeling of Montana loads in the light load cases</p>	M. Olczak

ATCID Revision History			
68.0	01/07/2022	<p>Whole document: replaced “ATC Path” with “path” unless section has been directly copied from MOD-029-2a; replaced “SOL” with “TTC”; removed website links; removed contract numbers</p> <p>p.3, line 68, “Limiting Assumptions” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted; language added to clarify how BPA complies with MOD-001-1a R6 and R7.</p> <p>p.4, line 122, “Priorities Used to Set TTC” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted</p> <p>p.10, line 184, “Data and Assumptions” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted</p> <p>p.12, line 255, “Process to Determine TTC” section: references to stability and thermally limited paths were eliminated and duplicative language was deleted</p> <p>p.16, line 394, “Use of WECC Base Cases to Determine Base ETC” section: deleted content related to what WECC includes in their seasonal base cases</p> <p>p.18, lines 470-476: clarification on the actions BPA takes to solve the power flow model</p> <p>p.18-19, lines 489-494: clarification on how BPA models the CER in heavy load scenarios</p> <p>p.19, lines 517-522: language added to reflect change discussed at the December 16, 2020 customer meeting</p> <p>p.21, line 584, “Source/POR and Sink/POD Identification and Mapping” section: deleted language that is found in the TSR Evaluation Business Practice and language related to MOD-030 R4 requirement; additional information on weighted PTDFs provided.</p>	M.Olczak
69.0	01/26/2022	<p>p.7, Table 1: removed Paul-Allston from table, as this path has been de-activated</p> <p>p.12-13, lines 272-286: rewording of section for clarity</p> <p>p.20, lines 565-568: added information on the PTDFs calculated and used for the Raver-Paul path when the Raver-Paul 500 kV line is out of service</p>	M.Olczak

ATCID Revision History			
70.0	02/16/2022	<p>p.17, line 426-429: revised to incorporate BPA's new methodology for modeling the Willamette Valley projects in ETC cases</p> <p>p.19, line 507: updated to reflect current suite of scenarios being run in heavy load ETC cases</p>	M. Olczak

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